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EDITED BY JACOB VINER AND F. H. KNIGHT, WITH THE CO-OPERATION OF THE OTHER MEMBERS OF THE DEPARTMENT OF ECONOMICS OF THE UNIVERSITY OF CHICAGO

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THE MONETARY ASPECTS OF THE WALRASIAN SYSTEM[1]

I

IF WE are honest with ourselves, as Pantaleoni shrewdly remarked some years ago, we should all be prepared to admit that every reader sees in a new work only what he already knows, plus, at best, a small "dose of novelty" which seems very tiny, indeed, in comparison with the accumulated body of economic doctrine.[2] In the history of economics few instances illustrate this fact better than does the treatment of Léon Walras' contributions by his contemporaries and those who came after him. The books on the history of mathematical economics cite many examples of judgments passed upon his work in the period when its only "dose of novelty" seemed to be its attempt to justify what Jevons ironically called "the obnoxious subject of mathematico-economic science."[3] As late as 1891, even Edgeworth, for whom the "exuberance of algebraic foliage" in which Walras imbedded his contributions can hardly be supposed to have acted as a major deterrent to an understanding of the author's meaning,

[1] Paper read before the Econometric Society in joint session with the American Economic Association and the American Statistical Association, as part of the Walras centennial program, Chicago, December 28, 1934.

[2] See p. 591 of Pantaleoni's note "A proposito di Luigi Cossa, etc.," in the *Giornale degli economisti* for December, 1898 (reprinted in the same author's *Erotemi di economia* [1925], I, 256).

[3] Cf. the Preface to the 2d (1879) ed. of Jevons' *The Theory of Political Economy* (p. xli of the 4th [1924] ed.).

was prepared to see an important "dose of novelty" in Walras' work only in the fact that Walras might be regarded as a kind of "Helvetian Jevons"—i.e., as a co-discoverer of the principle of marginal utility.[4] It was years before any considerable number of economists came to recognize the particular "dose of novelty" which was really the imperishable contribution of Walras to economic science: namely, the clear articulation and mathematical representation of the theory of general economic equilibrium.

Until very recent times, however, it has been very generally supposed that the list of Walras' achievements is exhausted when one has reached his contribution on the subject of general economic equilibrium; and, in particular, that his place in history will rest, apart from his contribution on the subject of marginal utility, not upon any analytical contributions that he may have made to our subject, but entirely upon his great work of synthesis. Knut Wicksell, the most generous of souls, and the one economist, of all economists, best fitted to appreciate certain parts of Walras' work which have been so sadly neglected, in fact expressed this judgment in almost these very words.[5] It is not surprising, therefore, that such a judgment should have been

[4] See Edgeworth, "La théorie mathématique de l'offre et de la demande et le coût de production," in *Revue d'économie politique*, Vol. V (1891), in which are reproduced (pp. 11, 28) those passages praising Walras for his "original discovery" of the principle of marginal utility which appeared first in the review of the 2d ed. of the *Éléments* contributed by Edgeworth to *Nature*, XL (1889), 435 f. Edgeworth's comment on the "exuberance of algebraic foliage" in Walras' work appears in the same review (p. 435); while the characterization of Walras as the "Helvetian Jevons" appears in Edgeworth's presidential address to Section F of the British Association, 1889 (reprinted in Edgeworth's *Papers Relating to Political Economy*, II, 280). It would not be true to say that Edgeworth missed completely the idea that Walras had really constructed a "system" of equilibrium; he noted, for example, that Walras' four "markets" were "interdependent" (*Nature, loc. cit.*); and in his presidential address of the same year he remarked, at the same time giving a reference to Walras' *Éléments*, "that the factors of economic equilibrium are simultaneously determined is a conception which few of the literary school have received" (*Papers*, p. 297). Yet there can be no doubt that, at this date, Edgeworth regarded as Walras' principal achievement "the copious exposition of the one fundamental theorem" of marginal utility (*Nature, loc. cit.*).

[5] See my article "Léon Walras and the 'Cash-Balance Approach' to the Problem of the Value of Money," in the *Journal of Political Economy*, XXXIX (1931), 594.

implied also by Pareto, the one economist, of all economists, who should have hesitated to pass judgment upon the value of Walras' contributions to what Pareto himself called the "particular" problems of economic science.[6] All the more reason, however, for demonstrating the falsity of this judgment by pointing to the power and originality of Walras' contributions to that "particular" problem of economic science which, in the often-quoted words of Mr. D. H. Robertson, presents such "appalling intellectual difficulty"—the problem of money.

II

Had anyone been asked, even a few years ago, what particular "dose of novelty" could be found in Walras' writings on money, he would probably have replied that this "novelty" was to be found in a certain scheme for monetary reform on behalf of which Walras made ardent propaganda.[7] Walras' proposals were attacked, to be sure, by Lexis, though on grounds which seem to me merely childish; and were dismissed with cynical comments

[6] Pareto's general attitude toward the use of mathematics for purposes of analysis rather than synthesis is typified by a remark in his obituary notice of Walras in the *Economic Journal*, XX (1910), 139; "When mathematics are applied to particular problems of economic science, they lead merely to results more curious than useful. We should not err widely from truth in saying that, restricted within these limits, the use of mathematics in economic science is futile." To be sure, Pareto did not mention Walras specifically on this occasion; but that he may have had reference to Walras, as well as to Marshall, may be deduced from remarks which he made on other occasions. See, for example, his cynical comments on Walras' proposals for the abolition of private property in land and for Indian monetary reform, in his Introduction to A. Osorio, *Théorie mathématique de l'échange* (1913), p. ix. If it be objected that Pareto's skepticism, on this latter occasion, had reference, not to the possibilities of *analysis* with the help of mathematical tools, but merely to what I suppose he would have characterized as Walras' "non-logical" desire to use economic analysis in order to improve the lot of mankind, I should merely point to Pareto's complete lack of sympathy with, or understanding of, Walras' analytical contributions to the field of monetary theory. See pp. 151 ff., below.

[7] There were, of course, a few exceptions to the general rule of neglect of Walras' contributions to monetary theory outside of his proposals for monetary reform. See, e.g., the references to Schumpeter, Del Vecchio, and Bilimović in n. 54 (p. 593) of the article cited in n. 5, above, and also the references to Antonelli, Zawadski, Weinberger, and Aupetit, on pp. 598 f. of the same article.

not only by Pareto, but also, strangely enough, by Edgeworth.[8] Yet, if defense of Walras' views on the subject of monetary reform were relevant here there would be no difficulty in citing "authorities" to whom Walras' proposals seemed important. To Marshall, for example, even though he preferred his own symmetallic proposal, Walras' scheme seemed "able and ingenious"; to Wicksell it seemed "theoretically more nearly impregnable" than Marshall's own scheme; to Professor Schumpeter it has seemed that "few contributions in the field of monetary policy are comparable with those of Walras"; and most recently, Mr. R. G. Hawtrey has broken a lance on Walras' behalf by insisting that Walras' proposal "deserves more recognition than it has received."[9] What seems to me really worth recording, however, is

[8] Typical of the criticisms by Lexis to which reference is made in the text was his suggestion that Walras' proposals took no account of the fact that "often the most significant price changes arise quite independently of the money-stock, and are not a consequence, but a cause, of changes in the quantity of circulating media" (*Conrads Jahrbücher*, LI [1888], 74; see also, in this connection, Wicksell's comments on Lexis' criticisms in the former's *Geldzins und Güterpreise*, pp. 167 f.) For Pareto's attitude to Walras' proposals for Indian monetary reform, see n. 6, above; and, for a considerably more respectful—though hardly more enthusiastic—judgment on Walras' proposed method for stabilizing the value of money, see Pareto's article, "Considerazioni sui principi fondamentali dell'economia politica pura," in the *Giornale degli economisti*, 2d ser., VI (1893), 24 n. 33. Edgeworth, in the review in *Nature* cited in n. 4, above, was even less reverent. It must be said that his reference, in connection with Walras' proposals, to "the tailors in Swift's Laputa, who went through laborious mathematical computations in order to determine the measurements of a suit of clothes, which after all fitted very ill," seems rather strange, coming, as it does, from the author of the elaborate discussion of symmetallism in the "Thoughts on Monetary Reform" (*Economic Journal*, V [1895], 442 ff.); and there is not a little irony in the fact that, despite Edgeworth's belief that Walras' plan could have no "direct bearing upon action," the Indian monetary reform of 1893 was in principle, if not in details, precisely in accordance with Walras' proposals, so far as the Indian part of the plan was concerned. And what shall be said for Pareto's understanding of the "practical"—to say nothing of the "theoretical"—aspects, of the problem of money, when it is noted that his cynical comments to the effect that "the English government does not seem to have paid the slightest attention" to Walras' plan were written in *1913*? Edgeworth himself seems to have overlooked the fact that the Indian monetary reform had adopted, in essence, the Indian part of Walras' plan, and to have forgotten the details of what he erroneously called Walras' "bimetallic scheme," in giving his approval to the comment in Pareto's "vigorous preface" to Osorio's book (*Papers*, II, 478).

[9] For Marshall's judgment on Walras' scheme, see his "Remedies for Fluctuations of General Prices" (1887), *Memorials* (ed. Pigou), p. 206, n. 2. For Wicksell's, see

that writers of the standing of Lexis, Pareto, Edgeworth, Marshall, and Wicksell were able to read what Walras had to say on the subject of money, and see no greater "dose of novelty" than this.

We know better now. We know, for example, that (1) Walras developed an algebraic "equation of exchange" of the so-called "Fisherian" type eleven years before Simon Newcomb, to whom Professor Fisher has always generously acknowledged his indebtedness;[10] we know that (2) Walras developed a "cash-balance" equation which is the exact algebraic equivalent of Keynes's famous equation $n = pk$, almost forty years before Keynes published his own equation;[11] and we know that (3) Walras presented

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Geldzins und Güterpreise, p. 167 (cf., also, his review of Walras' *Études d'économie politique appliquée* in *Conrads Jahrbücher*, LXXIII [1899], 826 ff.). For the comment quoted from Schumpeter, see his obituary notice of Walras in the *Zeitschrift für Volkswirtschaft, Sozialpolitik und Verwaltung*, XIX (1910), p. 399. For Hawtrey's discussion of Walras' plan, see *The Art of Central Banking* (1932), pp. 191 f.

[10] For a demonstration of the fact that Walras presented an equation of the Fisherian type in the 1st ed. of his *Éléments*, see my article on Walras cited in n. 5, above (hereafter referred to simply as "Léon Walras, etc."), pp. 573–79. For Fisher's acknowledgment of his indebtedness to Newcomb, see, in addition to the references given in n. 10 (p. 573) of that article, Fisher's obituary notice of Newcomb in the *Economic Journal*, XIX (1909), 642. I have, of course, never asserted that Walras was the first to give an algebraic statement of the equation in question. See, e.g., references to Roscher, Bowen, and Levasseur, in my "Léon Walras, etc.," p. 574; and, for an example of an algebraic statement of a crude version of the equation, on the form of $M = PG$, see the reference to H. Lloyd's *Essay on the Theory of Money* (1771) in my article "Zur Dogmengeschichte des Begriffes einer 'Umlaufsgeschwindigkeit der Guter' und seines Verhaltnisses zur Umlaufsgeschwindigkeit des Geldes," *Zeitschrift für Nationalökonomie*, IV, 197 n. I have stressed Walras' contribution primarily because, unlike the other writers mentioned, he was a figure of the first importance in the history of economic thought, so that there was less excuse for ignoring what he had to say on the subject of money. It seems to me fair to stress it also because, despite the clear facts of doctrinal history set out above, it is still thought permissible to speak of the "famous 'equation of exchange' " as having been "first algebraically set forth, independently, by the distinguished astronomer, Simon Newcomb, and Professor Shield Nicholson, of Edinburgh" (so C. Snyder, "Measurement versus Theory in Economics," in *Economic Essays in honor of Gustav Cassel* [1933], p. 596; and cf. the same author's "The Problem of Monetary and Economic Stability," *Quarterly Journal of Economics*, XLIX [1935], 185). See also what is said with respect to the "discovery" of S. Piperno as the "first" to state an algebraic equation of exchange of the Fisherian form, in n. 17, below.

[11] For a demonstration of this fact, see my "Léon Walras, etc.," pp. 580–86.

a perfectly clear statement of that particular analytical device which has been most discussed in the monetary theory of recent years—namely, the concept which has come to be called "forced saving."[12]

This list of Walras' achievements in the field of monetary theory is not complete. On the contrary, what Professor Schumpeter said recently of Keynes's famous list of the achievements of Alfred Marshall can certainly be applied with equal force to Léon Walras: "No list of results, however complete, exhausts the greatness or accounts for the 'aliveness' of his work; what is much more than any or all of them, is that he is constantly though unobtrusively leading on beyond himself—pointing Moses-like into lands in which it was not given to himself to enter."[13] Walras, for example, offered very much indeed which bears directly upon the concept of a "natural rate of interest"; and probably the only reason why this fact has not yet received adequate recognition is that here, again, Walras was far ahead of his time in sensing that the issues raised by that concept, instead of being confined to the considerations with respect to discount-policy which have always been associated with it, really carry us deep into the territory which, until the advent of Wicksell, was usually reserved for a special branch of theory—namely, "interest-theory"—which was held to be concerned entirely with "real-capital" phenomena and to have nothing to do with the theory of money. The particular solution of this problem which was presented by Wicksell in the form which this solution took in the *Geldzins und Güterpreise* was, in my opinion, a failure—albeit a failure so glorious that it may be expected to prove a definitive step toward the discovery of the truth. Walras was one of those who

[12] See my "Léon Walras, etc.," p. 598, n. 68; and cf. F. A. von Hayek, "A Note on the Development of the Doctrine of 'Forced Saving,'" in *Quarterly Journal of Economics*, XLVII (1932), 131 f.; also Professor Hayek's *Monetary Theory and the Trade Cycle* (1933), p. 218 n., where the author goes so far as to displace the name of Wicksell, which had held the post of honor in the original German version of 1929 (*Geldtheorie und Konjunkturtheorie*, p. 131 n.), by the name of Walras, as the "founder" of the theory of "forced saving." Cf., also, D. H. Robertson, "Saving and Hoarding," in *Economic Journal*, XLIII (1933), 412.

[13] See Schumpeter's review of Keynes's *Essays in Biography*, in *Economic Journal*, XLIII (1933), 655.

pointed the way toward the discovery of this truth; and I regard as one of the great misfortunes which has hampered progress in this direction that Wicksell, rightly under the spell of the good in Böhm-Bawerk, and rightly intent upon insisting that Walras should take account of this good part of the work of the great Austrian, should, on this question, have been blind to the shortcomings of Böhm-Bawerk, on the one hand, and the merits of Walras, on the other.

The time is not yet ripe for the demonstration of these propositions.[14] Yet, the ground is being prepared; and when the work of preparation will have been done, we shall recognize how truly Léon Walras, when sufficient allowances are made for certain crudities in exposition, and for the difficulties due to what Edgeworth called the "excessive elaboration of his reasoning" on matters of unessential detail, was again "pointing, Moses-like, into lands into which it was not given to himself to enter."

This brief survey of Walras' known contributions to the analytical part of the theory of money should not be left without anticipating an objection certain to be raised. Historians of economic doctrine are always accused—and often with justice—of reading much more into the authors they discuss than is actually there. May it not be that these contributions to which attention has here been called were so incompletely and casually stated that they could never have been expected to serve as the starting-point for later analysis?

This challenge can be accepted without the slightest hesitation. The analytical devices to which I have called attention are stated in Walras every bit as precisely as (if not more precisely than) the monetary doctrines of Alfred Marshall are stated in any published version of that teaching of which the Cambridge school has made such magnificent use. It seems important, therefore, that the responsibility for a failure of Walras' teaching to take root should be placed squarely where it belongs. This centennial appraisal should not be made the occasion to wrong another man who had his own historic rôle to fill, and to whom we must,

[14] I intend to demonstrate them in detail in my forthcoming book on *The Natural Rate of Interest.*

among many other things, be everlastingly grateful for having kept alive one great strand in the Walrasian tradition. But it calls for comment that extravagant praise has been bestowed on the monetary theory of Pareto by members of the Lausanne school who have had no such words of praise for the monetary theory of Walras;[15] and that by others it has been said that Pareto's monetary theory is "analogous" to, or identical with, that of Walras, except in so far as it may be said to represent an "improvement" thereof, in both form and substance.[16] Since these things have been said by writers whose supercilious comments upon other aspects of Walras' work Pareto himself warmly approved, there should be made clear what seems to be the simple truth with respect to Pareto's treatment of the heritage which he received from Walras in the field of monetary theory.

In the first place, Pareto apparently nowhere made use of the equation of exchange of the Fisherian type which Walras presented in the first edition of his *Éléments;* and this has led to results, in the case of those deriving their inspiration directly from Pareto, which may be characterized as perfectly fantastic.[17] In

[15] The following may be taken as typical: "All that we know to be scientifically correct with respect to the economic theory of money is found, as is known, in the *Cours* of Pareto himself . . . . in addition to various passages of his *Manuel* . . . ." (G. Sensini, "Vilfredo Pareto e la teoria della moneta," *Giornale economico*, 1929; reprinted in the same author's *Studi di scienze sociali* [1932], p. 215). For examples of the sort of knowledge of the literature on which Sensini bases this judgment, see nn. 17 and 18, below.

[16] For a statement to the effect that the "theory of money" developed by Pareto in his *Cours* is "analogous to that of Walras," see J. Moret, *L'emploi des mathématiques en économie politique* (1915), p. 147. For the statement that Pareto's monetary theory "is the theory of Walras, but much improved, in form and substance," see P. Boven, *Les applications mathématiques à l'économie politique* (1912), p. 143.

[17] Consider, e.g., the treatment of money in F. Divisia, *Économique rationelle* (1928)—a treatment which C. Colson, in his Introduction (p. xx) regards as providing "an indispensable complement" to the monetary theory of Walras and Pareto. Actually, it is clear that Professor Divisia regards Pareto, and not Walras, as the authoritative expounder of "the classical theory of the determination of prices" (see, e.g., p. 402). The chief result of this was that, in attempting to remedy what he regards as the failure of all earlier writers to "resolve completely the problem of the determination of prices," Professor Divisia has thought it necessary to introduce what he calls "L'équation circulatoire" (*op. cit.*,

the second place, Pareto apparently nowhere made use of Walras' concept of an *encaisse désirée*, which is the precise analytical equivalent of what Mr. D. H. Robertson has designated as the "powerful weapon forged originally by Petty and sharpened by Marshall and Pigou," and this also has had results which are anything but gratifying.[18] Nor does it seem to be going beyond the

p. 413). The "équation circulatoire" (see, e.g., p. 282), incredible as it may seem, turns out to be nothing more nor less than the Fisherian equation. Professor Divisia admits as much (p. 267); but adds that "when, three years ago, we made the same discovery [as Fisher had made in 1911], we were completely ignorant (we must admit it with shame) of the works of the learned American professor." This, in 1928! Nor does the comedy end here. When Professor Sensini, in the work cited in n. 15, above, undertook, in the course of a defense of Pareto against Divisia, to discuss the implications of an equation of the Fisherian type, he, a member of the Lausanne school, claimed the paternity of this equation, not for the Walras of 1874, whom Sensini does not mention, but for S. Piperno, whose *Elementi di scienza economica* were published in 1878, and whose equation had already been cited, not by Pareto, but by Pantaleoni (see the latter's *Pure Economics*, p. 231 of the English [1898] translation). Is it too much to characterize as "fantastic" such a treatment of Walras' contributions to monetary theory by those members of the Lausanne school who relied upon Pareto to transmit the substance of Walras' teaching?

[18] The nature of these results may be judged by considering the quality of Pareto's treatment of those two problems for which the notion of an *encaisse désirée* has its chief usefulness. The first is the problem of the velocity of circulation of money. It is not true, despite the statement to the contrary by G. H. Bousquet (*Vilfredo Pareto, sa vie et son œuvre* [1928], p. 88), that "the notion of velocity nowhere appears" in the *Cours*. See, in this connection, Vol. II, pp. 945 f. of that work, where Pareto discusses the statistical results obtained by P. des Essars, and attempts to relate them to the discussion of "velocities"—the latter concept being loosely applied, not only to "receipts" and "debits," but also to "consumption"—which he had presented earlier in the same book (II, 281 ff.) and which he believed to be associated with the "origin of crises" (II, 294). What is true, however, is that neither in the *Cours* nor in the *Manuel* (pp. 368 ff.) does Pareto make any use of the idea of an *encaisse désirée* as an aid in explaining why the movements in the velocity of circulation of money are what they are. Cf., in this connection, my "Léon Walras, etc.," pp. 596 f. No wonder that Sensini, in the work cited in n. 15, above, in referring to Keynes's cash-balance equation, saw in it only "a simple identity," which "adds nothing to our knowledge"! The second problem for which the notion of an *encaisse désirée* may be held to be relevant is that of the application of "utility analysis" to the problem of the value of money. (On this matter, see what is said on pp. 156 ff., of this article, below.) Pareto discussed this matter on more than one occasion. See, e.g., his essay "Considerazioni sui principi fondamentali dell'economia politica pura" (cited in n. 8, above), pp. 11 ff., 36 f.; *Cours*, I, 35 n., 36 ff.; and *Manuel*, p. 593. Yet on each occasion, it was as if Walras had never written; for the "marginal utility" (or "ophelimity") of money is, to Pareto, either the

bounds of simple truth to say that Pareto's own "contributions" to monetary theory are of so trifling a nature that they may safely be disregarded.[19] If this judgment seems harsh, I should plead, in extenuation, that no one was harsher than Pareto himself in judging what he regarded as the shortcomings of his own great predecessor.

III

The instances cited in the preceding section are, however, by no means the only instances of a perverse persistence in concentrating upon the unessential, rather than the essential, parts of Walras' contribution. As it happens, the monetary theory of Walras has been under attack upon the ground also that it rests at its crucial point upon some assumption which is contrary either to the facts of the world about us or to certain of the funda-

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utility of the money-commodity in its non-monetary uses or the utility of the money-*income;* it is never the utility of the cash-balance, as such. Again it is hardly surprising that the discussion of Professor Divisia, who devotes many pages to the question of the "utility of money" (*Économique rationelle*, pp. 400 ff., 424–33), all of which start from what Pareto had to say on the subject, but do not once mention Walras or the notion of an *encaisse désirée*, should suffer from the same sort of difficulty!

[19] The chief of Pareto's "contributions" (if such they can be called) seems to have been his distinction between "true" and "false" money—a distinction faithfully copied by some of his more faithful disciples. See, e.g., the *Cours*, I, 164 ff.; *Manuel*, pp. 450 ff. The notion seems to have been taken over from T. Martello, *La moneta* (Florence, 1883. See especially chap. xi, and cf. the enthusiastic references to Martello in the *Cours*, I, 166 n., and the *Manuel*, p. 450). I must confess that this usage seems to me to lead more to confusion than it does to clarity. Dr. Bousquet (*op. cit.*, p. 88) comments that the terms "true" and "false" seem to have been "chosen with a view 'to awakening certain accessory sentiments,' as the author of the [idea of] 'derivations' would have said later." Exactly; the whole episode thus constituting a strange commentary upon the monetary theory of the man who was so free in his criticism of Walras' "metaphysical" tendencies and his interest in programs for social and economic action! Nor can it be said that the details of Pareto's analysis, even when he was dealing with the simplest of monetary problems, are such as to lead to clarity. He had a most annoying habit, for example (though it is not confined to him), of saying that among "civilized" peoples, as a result of the development of checks, bank notes, etc., very little actual "money" was used, so that it was as if "money did not yet exist, and as if one obtained commodities by direct exchange (barter)." (So, e.g., *Manuel*, p. 456.) Surely, in the light of the issues raised by the discussion, in recent years, of the relationship of the theory of general economic equilibrium to "barter assumptions," this is hardly an illuminating way of putting one of the simplest of known facts!

mental assumptions underlying Walras' general system of economic equilibrium. In a sense, these objections, taken together, would seem to criticize Walras for having simultaneously committed two sins of directly opposite character. On the one hand, he is virtually accused of having been too anxious to secure symmetry in his general system, at the expense of the facts of the world about us; on the other hand, he is accused of not having taken enough pains to bring what he had to say on the subject of money into a symmetrical relationship with the rest of his doctrine.

Much has been said with respect to the "usefulness" of the Walrasian system for purposes of economic analysis. I have, thus far, attempted to show that if we are willing to take the Walrasian "system" *as it is*, instead of confining our attention merely to those aspects of the "system" which we have come to think of as being the peculiar contribution of Walras, we are forced to the conclusion that the monetary aspects of the "system," instead of being negligible, represent specific contributions to the theory of money of the very greatest "usefulness" imaginable. It is precisely because I believe this to be so, and because I believe that, once the broad lines of the picture of general economic equilibrium had been sketched by Walras, the future development of our subject became much less dependent upon any further generalization of that picture, or upon any attempt to smooth out what some have regarded as its rough edges, than it is upon the multiplication of specific analytical techniques, that I do not take very seriously the type of criticism under discussion. No doubt Walras, who laid much store by the beauty and symmetry of his system, *would* probably have taken it seriously.[20] And I may be chided, as I was chided a few years ago by a gentle critic who objected to a similar statement of mine in an earlier paper on

[20] That Walras was highly sensitive to the aesthetic aspects of his system is clear from the passages in which he spoke of the theory of economics, when it should be completed, as "one of the most beautiful of the physico-mathematical sciences" (so, e.g., in the *Théorie de la monnaie*, p. 28), or when he spoke reverently of the qualities of "breadth and simplicity combined" which "constitute scientific beauty" (*ibid.*, p. 29; cf. the *Études d'économie politique appliquée*, pp. 87 f.). Cf. also the references to Walras' remarks upon the relation between his theory of the value of money and his general theory of value which are given in n. 22, below.

Walras, for approaching the problems of monetary theory, not from the standpoint of the theory of general economic equilibrium as such, but from a point of view which "in emphasis and intention may be called Ricardian, in that more attention is paid to the substance than to the form of the argument."[21] But for some purposes in economics, Ricardo is not such a bad model; and it is no belittlement of Walras, but rather the conferring upon him of greater glory, to be able to point out that in his treatment of certain specific problems in monetary theory he often showed analytical powers that would have been not unworthy of the man whom most of us would regard as the possessor of the most powerful analytical mind that has ever applied itself to economic problems.

This is not to admit, however, that the particular criticisms of Walras that I have in mind have always been well founded. Consider, for example, those criticisms which have been directed against his attempt to apply what has come to be called "utility analysis" to the special case of the value of money—an attempt by which Walras himself unquestionably put great store.[22] Against this part of Walras' argument, it was argued, as early as 1909, by Professor Del Vecchio of Bologna, that the whole of Walras' attempt to obtain symmetry in the application of so-called "utility analysis" can be upheld only if we are prepared to acquiesce in what seemed to Del Vecchio an assumption that is contrary to fact—namely, the assumption that the cash-balance, *as such*, provides a service to the holder thereof, and therefore may be said to have a "utility" in itself.[23] This "service," Del Vecchio holds, is quite fictitious; therefore the whole attempt of Walras

[21] See the remarks of G. Del Vecchio on my earlier paper on Walras (cited in n. 5, above), in the *Giornale degli economisti*, XLVII (1932), p. 99. For the remark to which reference is made in the text, see my "Léon Walras, etc.," p. 591.

[22] See, in this connection, my "Léon Walras, etc.," p. 592, and especially n. 52 thereto. Cf. also Walras' *Théorie de la monnaie*, pp. 36 f.

[23] See the references to Del Vecchio given in n. 54 (to p. 593) of my "Léon Walras, etc." Since the publication of the latter paper, the relevant parts of Del Vecchio's analysis have been reproduced in the same author's *Ricerche sopra la teoria generale della moneta* (1932), chap. ii.

to obtain symmetry through the application of the principles of utility analysis breaks down.

It would take me more space than I have at my disposal to answer this type of criticism in detail. I shall say here only that, while most of it is valid against those theorists who have not gone beyond the proposition that "the utility of money is derived from the utility of the things which money can buy," it is not valid as against those who, like Walras, in their discussion of the forces determining the value of money, thought of the "utility of money" not as the utility of money-*income* but as the utility of money held as a *cash-balance*, in which case it *is* possible to balance the advantage (or utility) of holding claims to "real wealth" in the form of money, against the advantage (or utility) of holding wealth in other forms. In any case, it seems sufficient to dispose of the matter by asking this single question:

Supposing, for the sake of argument only, that we grant that Walras was wrong in arguing that money may be said to have a specific utility, quite apart from any utility the money-commodity may have in industrial uses. Just how much is lost, for the future development of monetary theory, by a supposed demonstration of such an "error" in Walras' reasoning? On the other hand: how much would be lost if we were not able to use, in dealing with the problems usually grouped under the head of the "velocity of circulation of money," the concept of a set of forces determining individual adjustments in the size of cash-balances relatively to money-outlay? In this respect, surely, Walras' concept of an "*encaisse désirée*" has shown itself to be an analytical tool so powerful that it cannot be dispensed with in the future development of monetary theory. If this is so, the importance of this particular aspect of Walras' contribution to monetary theory is not that he succeeded, or did not succeed, in doing what Mr. Keynes has listed as the first of Marshall's "original contributions" to the theory of money—namely, expounding "the quantity theory of money as a part of the general theory of value"—but in the fact that Walras, like Marshall (whose analysis follows that of Walras in every essential respect, though it seems to have been developed

quite independently) succeeded in forging a powerful analytical weapon the importance of which is to be judged quite apart from the questions of symmetry and elegance which are involved in criticisms of the type I have been discussing.

Much the same may be said of the criticism recently directed against Walras' discussion of "Equilibrium and Money" by Mr. J. R. Hicks, of London.[24] In effect, Hicks's criticism of Walras is not that, in his search for symmetrical elegance, Walras did violence to the facts of the actual world, but is rather the opposite: namely, that Walras, in his desire to take account of facts which are important in the actual world, did violence to the symmetry of his system. Concretely, Mr. Hicks argues that Walras' "serious attempt" to discuss money as a medium of payment or exchange was a failure because it forgot one of the fundamental assumptions upon which his system of equations is constructed, namely, the assumption of perfect foresight. In a world in which there is perfect foresight, Hicks argues, there would be no use for money at all. It was a mistake, therefore, to attempt to introduce a "demand for money" into his equations, since such a demand for money would always be zero. Since the demand for money would be zero, its value as a medium of exchange would be zero.[25] Why, then, should Walras have pretended to have succeeded in incorporating his analysis of the forces determining the value of money into his general system of economic equilibrium, when

[24] Hick's discussion forms sec. II (pp. 446 ff.) of a longer paper, entitled "Gleichgewicht und Konjunktur," published in the *Zeitschrift für Nationalökonomie*, Vol. IV (1933).

[25] Hicks puts the matter somewhat differently by saying that "if the demand for money is equal to zero, the price-level would be quite indeterminate" (*op. cit.*, p. 447). That is to say, if there is no money, there is no sense in speaking of the "value of money," in one of its most common senses, namely, the inverse of the price-level, although any given commodity chosen as *numéraire* (see Hicks, p. 446, and 170 ff. of this article) could still be said to have value for other purposes than as a medium of exchange. The "price-level" would thus be "indeterminate" in the sense that, since no commodity would, according to Hicks, be used as a medium of exchange, there would be no point in speaking of any one "price-level" (i.e., the rate of exchange of any given commodity for "all others") rather than another. I believe, however, that I am doing no violence to Mr. Hicks's argument by stating it as I have stated it in the text.

in fact, the only effect of his attempt to do so was to destroy the symmetry of that system by running counter to one of the fundamental assumptions underlying it?

I will not undertake here a detailed discussion of the successive steps of Hicks's argument. It should be noted, however, that it is by no means clear, as a purely theoretical proposition, that a given commodity could not be said to function as a medium of indirect exchange unless there is an actual holding of cash balances.[26] It is debatable, also, whether anything more is involved in the assumption of "perfect foresight" than the assumption of *sufficient* foresight to permit of adjustments of the kind, and to

[26] That this is so will be clear, it seems to me, as soon as one reflects that most of the elementary "functions" assigned to money are based upon an examination of the difficulties involved in barter, because of the lack of both qualitative and quantitative coincidence of desires on the part of two possible exchangers. This conventional type of analysis is to be found in the earlier editions of Walras' *Éléments*. (See, e.g., his discussion of the factors which render "exchanges *in natura* prodigiously laborious and difficult," in the first edition, pp. 173 f.—a discussion which is repeated virtually verbatim in the second edition [pp. 428 f.]). Even, therefore, if we imagine that everything is perfectly foreseen, and that there is no reason why cash-balances should be held, it might still be true that all exchanges would have to be effected by the use of a generally acceptable medium of exchange, into which, under the highly artificial assumptions here assumed, it would be necessary to convert all commodities before obtaining the commodity desired in exchange. To be sure, upon the assumption that no one would find it necessary to hold cash-balances, since—let us say—they could always go to a kind of public treasury and obtain a certificate which they would spend in a few hours, we may say that the "demand for money" would be so vanishingly small that it could be neglected. This is, in fact, Walras' preliminary assumption, before he begins to ask what effect the use of a commodity as a medium of exchange has upon its value. See, e.g., the *Éléments*, 1st ed., p. 150: "We suppose here that the purchases and sales of (A) as intermediary are effected in such a way as to have no influence upon the price of this commodity itself." (Cf., also, p. 156 of the 5th [definitive] ed.) The point to be made here is that the use of such a medium of exchange, designed to overcome the inconveniences of barter, even though we assumed that its use as money added nothing to its value, would still represent indirect exchange, so that "money" would not be absent, even on the assumption of perfect foresight. Interestingly enough, the passage cited above from the 1st and 5th eds. of the *Éléments* is quoted by Mr. Hicks himself in a later article ("Léon Walras," in *Econometrica*, II [1934], 341, n. 9); but, for some reason which I do not perceive, he supposes that Walras is speaking here merely of the *numéraire*—despite the fact that Walras is explicitly discussing money as an actual *medium of exchange*, quite apart from its function as *numéraire*. See pp. 154 ff. of the 5th ed. of the *Éléments*.

the degree, that is called for in order that the system may progress toward a condition of equilibrium—an assumption which is perfectly compatible with the possibility that entrepreneurs may find it wise to make provision for certain contingencies that may arise in the process of adjustments, of such a character as to give to entrepreneurs who are especially well prepared to meet these contingencies special advantages during the process.[27] It is very much more debatable, moreover, whether "uncertainty" is the only factor which will give rise to a demand for cash-balances. Even in a world in which everything were perfectly foreseen, a lack of synchronization between the receipt of income and its outlay would give rise to a need for cash-balances so long as there are not perfect facilities for the borrowing of money in anticipation of receipts and the investment of money during the period

[27] It must be remembered that Walras himself, while he was prepared to make the assumption of the "absence of uncertainty" in certain respects in his treatment of certain special problems (see, e.g., the 5th ed. of the *Éléments*, pp. 300 f.), nevertheless always thought of the equilibrium position as being reached by a process of "*tâtonnement*"—that is to say, a kind of tentative "groping" toward the equilibrium position, which would be quite unnecessary if there were "perfect foresight" in the sense in which Mr. Hicks uses the term. We may feel, if we wish, with Edgeworth, that the study of the *processes by which equilibrium is reached* is no part of "static" theory proper, but belongs rather in the field of dynamics. (See, in this connection, p. 435 of Edgeworth's review of the 2d ed. of the *Éléments* in *Nature*, cited in n. 4, above; and especially Edgeworth's article in the *Révue d'économie politique* for 1891, cited in the same note—an article which was written in answer to Bortkiewicz' defense of Walras on the point in question). We may agree further with Edgeworth that "Walras' laboured lessons indicate *a* way, not *the* way, of descent to equilibrium" (*Nature, loc. cit.;* cf. also Edgeworth's *Papers*, II, 311); and that what Edgeworth called a "general *dynamical* theory" would include all sorts of possibilities in addition to the type of process described by Walras. Yet surely Mr. Hicks would not deny, any more than Edgeworth denied, that Walras' way was *a* way; nor would he deny that Edgeworth's preferred way—the "higgling" process of "recontract"—itself assumes something less than "perfect foresight," in Mr. Hicks's sense of the term, as would, indeed, any description of the adjustment process that could lay claims to some sort of realism. What Mr. Hicks would have to prove, in order to prove that "the" theory of equilibrium involves the assumption of absolutely perfect foresight—assuming, despite Edgeworth's pronouncement, that we still wish to include a discussion of the "way in which" equilibrium is reached within "the" theory of equilibrium—is that equilibrium could not possibly be reached by either Walras' or Edgeworth's process. Until such a proof is provided, it seems to me, we must accept as fair the statement in the text as to what "the" theory of equilibrium presupposes in the way of "foresight."

elapsing between receipt and outlay.[28] Mr. Hicks does recognize the necessity for assuming at least the existence of *investment* possibilities, in precisely the amount and for precisely the length of time desired.[29] Surely, however, the existence of such borrowing and investing possibilities is not something which is inherent in, and inseparable from, a statement of the conditions of general economic equilibrium. To prove any such proposition, it would be necessary to prove that there is no chance of reaching an equilibrium, say, between costs and prices, of the kind envisaged by Walras, *unless* such possibilities exist.[30] This seems to me a propo-

[28] Of these two conditions, obviously the latter is the more fundamental one. For perfect investment possibilities would mean that, though it might be necessary, in the absence of perfect borrowing facilities, to accumulate resources in anticipation of expected outlay, these resources might be *invested*, in which case no cash balance need be held. Nevertheless, for any realistic account of the forces determining the size of cash-balances, it is necessary to take the extent of facilities for borrowing into account also.

[29] See Hicks, *op. cit.*, p. 447. His answer to this anticipated objection is simply that "in fact" such "investment" possibilities always exist, in the form of *a deposit at the bank;* and he goes on to suggest that "the practice followed by modern monetary theorists, of treating the problem as a banking problem and of treating bank deposits actually as 'money' is, despite its convenience in practical use, apt to obscure the true nature of the problem." The obvious reply, of course, is—*What* problem? If we are interested in the forces determining the value of "money," and in particular—as Mr. Hicks himself is interested—in the forces determining the size of cash balances, the fact that no "investment" other than a balance at the bank will do for our purposes and the further fact that not only "modern monetary theorists" but also hard-headed business men regard bank balances as "cash" in a sense in which no other of their assets are regarded as "cash" together make it very doubtful, indeed, whether regarding a bank deposit as an "investment" does not "obscure" the issues much more than it throws light upon them.

[30] Mr. Hicks argues (*op. cit.*, p. 447) that evidence of such absence of equilibrium is found whenever anyone desires to hold cash in hand, for the reason that "it will always be in everyone's interest to increase his future income by lending his present property." This again assumes, however, that such "lending" possibilities always exist; and in the light of what is said in the preceding note, it must be obvious that Mr. Hicks's attempt to deduce the inevitable existence of such "lending" possibilities from the assumption that banks exist can hardly be regarded as a conclusive one. In any case, however, the perfect satisfaction of one's "interest" which is assumed to be a condition of equilibrium (in the sense of a position from which there is no inducement to depart) is surely always "perfect" only with reference to a given set of institutional conditions. All that "the" theory of equilibrium requires is that a person shall have "invested" all the cash which he feels it wise to invest in the position in which he finds himself, so that he will not find it to his advantage

sition quite incapable of proof; and so long as this is so, it cannot be argued that Walras was guilty of gross inconsistency in leaving room for the use of money as a medium of exchange in his equations of general economic equilibrium.

These, however, are mere matters of detail which do not go to the root of the questions involved in any attempt to appraise Walras' treatment of money as part of his treatment of the problem of general economic equilibrium. Suppose we should admit, for the sake of argument, that, on the assumptions underlying the theory of general economic equilibrium, the demand for money as a medium of exchange must always be equal to zero. Just how serious is Walras' supposed error in including, among the parameters in his equations, a set which may be regarded as co-operating to determine the value of money? These parameters, according to Hicks, would, under the assumptions which he describes, have the value of zero. At the worst, therefore, the inclusion of such parameters could not disturb the validity of conclusions reached through manipulation of the other terms of the equations.

Surely, moreover, great disservice is being done to our subject by those—Mr. Hicks, certainly, is not among them—who argue that the great bulk of received economic theory is perfectly inapplicable to the world as we know it because that theory is based upon a set of "abstract" premises, since among the things from which "abstraction" is made in much of economic theory there are many things which cannot be abstracted from in the study of a given concrete situation. Yet, it is also true that whenever it becomes a question of making further progress in analysis, there are gradations of usefulness in the received writings upon our subject, depending upon the extent to which earlier writers

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to change his behavior until the data change. If we go beyond this condition, where shall we stop with respect to our institutional assumptions? Why does Mr. Hicks bring banks into his picture of equilibrium, but not money? Why not exclude private property and free enterprise from the institutional conditions which are to be assumed for purposes of constructing a theory of equilibrium if our theory is to be "general" in the sense of covering every possible set of institutional assumptions?

called attention to, even if they themselves refrained from analyzing in detail, certain concrete phenomena which our subject must some day analyze.

The present instance seems to me a case in point. When Walras wrote his equation of the Fisherian type in the first edition of his *Éléments*, he might have been content to write: "Other things being equal, $M = PT$, in which T is a constant." He wrote, instead, an equation which included not only the variables of the equation of exchange given by Fisher in his *Purchasing Power of Money* but also a symbol representing that variable which has received so step-motherly a treatment at the hands of monetary theorists—namely, something which may be called the "velocity of circulation of goods."[31] In the same way, Walras might have written his equations of general economic equilibrium without including money at all. He might have argued, as Mr. Hicks has argued, that there is no place for the *encaisse désirée* in a statement of general economic equilibrium, on the ground that, under certain special assumptions, this *encaisse désirée* would be equal to zero. To his glory, he did nothing of the kind; with the result that he left us another tool which we can use in our study of the world about us.

IV

The argument of Mr. Hicks which we have been considering does, however, raise the question whether the theory of general economic equilibrium is or is not necessarily based upon "barter" or *in natura* assumptions. Mr. Hicks, as we have seen, has argued, not that the theory of general economic equilibrium *has* been based upon the assumption of "barter," but that, in strict logic,

[31] See, on this matter, pp. 574 f. of my "Léon Walras, etc." Since I have made myself a kind of foster-father to that concept the treatment of which I have characterized as "step-motherly," and since here, also, Walras pointed to a field for further investigation even if he himself did not cultivate it, I may perhaps be pardoned for calling attention to the series of articles which might be entitled collectively "The Velocity of Circulation of Goods as a Problem in Monetary Theory," but which were published under separate titles in the *Journal of Political Economy* for June, 1932, August, 1932, and April, 1933, the *Zeitschrift für Nationalökonomie*, Vol. IV, *Economica* for November, 1932, and August, 1933, and the *Quarterly Journal of Economics*, November, 1932.

it *should* be.[32] The position to which I now wish to direct attention maintains, on the contrary, that, as a matter of historical development of economic doctrine, the theory of general economic equilibrium *has* been based upon the assumption of "barter" conditions.[33]

A few years ago it would have been easy to dismiss this latter contention as being essentially unimportant, for, at that time, the "literature" on the question as to the relationship between the theory of equilibrium and "barter assumptions" may be said to have been very slight indeed. There was, to be sure, the brilliant and prophetic fragment of Walter Bagehot, on "The Transferability of Capital," in his *Postulates of English Political Economy*.[34] There was also the well-known essay of Professor Cassel, "Grundriss einer elementaren Preislehre," published in the *Zeitschrift für die gesamte Staatswissenschaft*, in 1899; although it is certainly open to question whether Cassel's factitious grouping of essentially unrelated problems under what came later to be the slogan "price theory versus value theory," together with his misleading implications with respect to the rôle assigned to money in received theory on the subject of value and price, did not confuse the issues more than it clarified them.[35] The question was again

[32] That this is Mr. Hicks's contention should be clear from the footnote to p. 446 of the article cited, in which he refers to Walras' "serious attempt to discuss money as a medium of payment," despite the fact that in the text of the article itself he declares that "money as the medium of indirect exchange plays no rôle in the Lausanne equilibrium" (p. 446) and that "monetary theory in the strictest sense falls outside the theory of equilibrium" (p. 448).

[33] I have in mind here particularly statements such as those of Koopmans and Hayek, cited in n. 44, below.

[34] Pp. 41 ff. of the 2d (1888) ed. of Bagehot's *Economic Studies*.

[35] The crudities of Cassel's first approach to the problem seem to me to have been exaggerated, rather than softened, in the later treatment of the problem which one finds in his *Theory of Social Economy*, chap. ii, and in his *Fundamental Thoughts in Economics*, pp. 45 ff. The abuse of his predecessors for having "involved the science in immense difficulties" by insisting upon taking as the "basis of the entire theoretical structure" an "imaginary exchange economy without money" (so, e.g., *Social Economy*, pp. 49 ff.) has become more undiscriminating, by virtue of the fact that the individual authors who may be regarded as culprits are not named. There is a more evident confusion between the historical question, on the one hand, as to whether a barter economy preceded or developed *pari passu* with the money-econo-

approached in 1908, on what seems to me a much higher plane, by Professor Schumpeter, in his *Wesen und Hauptinhalt der theoretischen Nationalökonomie;* and in 1911 certain of the problems involved were discussed by the late Professor Allyn Young in his essay on "Some Limitations of the Value Concept."[36] The issues were once more skirted, if they were not attacked directly, in some of the discussion growing out of Mr. D. H. Robertson's assumption, in his *Banking Policy and the Price-Level*, of a "state of frictionless barter" as the ideal which a monetary policy designed to disturb industrial equilibrium as little as possible might well attempt to simulate;[37] and there were, of course, other instances which I shall not bother to enumerate. It is only within the last few years, however, that the question as to the part played by money in the theory of general economic equilibrium may be said to have forced itself to the front; and it is in the setting which has been provided in particular by that part of this

my (e.g., *Social Economy*, p. 49) and, on the other, the purely logical issues involved in the problem of the justification of barter assumptions in equilibrium theory; and, worst of all, there is still the confusion so obvious in his essay of 1899, which arises from the fact that his proposed "simplification" of theory (*Grundriss, loc. cit.*, p. 398) by means of the construction of a "theory of prices instead of a theory of value" (*Social Economy*, p. 51), is so largely concerned, not merely with considerations of the kind mentioned, but also with such conceptually distinct matters as the validity of much of the theory usually discussed under the head of "marginal utility" (see, e.g., the *Grundriss, loc. cit.*, pp. 415 ff.).

[36] See especially chap. iv of Schumpeter's *Wesen und Hauptinhalt.* Professor Young's paper, originally published in the *Quarterly Journal of Economics* for May, 1911, was reprinted, with some changes, in the same author's *Economic Problems, New and Old* (1927), pp. 198 ff.

[37] See Robertson's *Banking Policy and the Price Level*, pp. 8 ff. I hasten, however, to exonerate Mr. Robertson of any responsibility for generalizations to the effect that "the" theory of "equilibrium" is in fact based upon barter assumptions. Implications to this effect are to be found rather in the writings of those who undertook to "interpret" Mr. Robertson's position. Thus, for example, when Miss Tappan undertook (in *Economica* for March, 1928) to answer the question of Mr. R. F. Harrod (in *Economica* for June, 1927, p. 225) as to whether anything more than "some latent aesthetic interest" underlay Robertson's ideal of "frictionless barter," she felt warranted in declaring (p. 100) that to question Mr. Robertson's aims "is to question fundamental tenets of economic doctrine," since "if . . . . the fluctuation of frictionless barter as the appropriate ultimate aim of banking policy is to be successfully challenged, our recognized marginal analysis must be thrown to the winds."

recent discussion which has been associated with the concept of so-called "neutral money" that I wish to discuss the problem here.

The limits of this paper do not permit an attempt to untangle the different elements that have gone to the making of the concept of "neutral money."[38] It will be sufficient, for my present purpose, to indicate the nature of at least one of the issues involved in this concept, and the relation to that particular issue of Walras' treatment of money in his general system.

The issue in question is involved in one particular application of the notion of "neutral money" which has been made by that writer who has written more extensively on the concept than any other—Mr. J. G. Koopmans, and concerns the relationship between the concept of "neutral money," on the one hand, and that of the "natural rate of interest," on the other.[39] In brief, Koopmans' suggestion is that the concept of "neutral money," when properly defined, provides a bridge between the two principal definitions of the "natural rate of interest" which were given by Knut Wicksell, in his *Geldzins und Güterpreise*, and his *Lectures on Economics* ("*Vorlesungen über Nationalökonomie*"), respectively.[40] In the former work, Wicksell defined the "natural rate" as the rate of interest which would be determined if "real capital were lent, without the intermediacy of money, *in natura*."[41] Here, obviously, the word "natural" has the implications attaching to it in the notion of a "natural," or barter, as opposed to a money economy. In his *Lectures*, on the other hand, Wicksell defined the "natural rate" as the rate which would bring the "demand for loan capital" into equilibrium with the "supply of

[38] I avoid this task the more readily here—though it is in my opinion a task the performance of which is sorely needed—because I shall deal with it at length in the book announced in n. 14, above.

[39] See Koopmans' essay "Zum Problem des 'Neutralen' Geldes," in *Beiträge zur Geldtheorie* (ed. Hayek), 1933, especially pp. 273 ff.

[40] Wicksell, of course, presented or used in his various writings many more definitions of the "natural rate" than the two mentioned, with resulting havoc for parts of his own analysis as well as for writings on the theory of money and interest that were ostensibly derived from his argument. Of this, much more in detail in the book on *The Natural Rate of Interest* announced above.

[41] See, e.g., *Geldzins und Güterpreise*, p. 93.

saved media," the latter being understood as the supply of voluntary savings directed to the loan market in the form of money.[42] Here, just as obviously, the word "natural" has the implications attaching to the use of the word "natural" by the classical economists, namely, "natural" in the sense of "equilibrium." These two definitions are, in my opinion, not only fundamentally irreconcilable but also represent different stages in Wicksell's intellectual evolution. Precisely because this is so, however, it becomes necessary to take account of the attempt, made with particular explicitness by Koopmans, to prove that in substance the two definitions come to the same thing.[43]

Mr. Koopmans' solution is very simple. It consists merely of the affirmation that the definition of the "natural rate" as the rate which would be set if real capital were lent *in natura* must be regarded as equivalent to the definition of the "natural" rate as the "equilibrium" rate, for the simple reason that the theory of general economic equilibrium is itself constructed upon the assumption that goods are bought and sold, borrowed and lent, *in natura*.[44] This latter proposition has already been attacked, in no

[42] See, e.g., Wicksell's *Vorlesungen*, II, 220.

[43] See especially Koopmans, *op. cit.*, pp. 273 ff.

[44] See especially Koopmans, *op. cit.*, p. 229, where, in stating the assumptions underlying the theory of general economic equilibrium, he italicizes the condition that there must be "direct exchange without the intermediary of any medium of exchange of any kind." Quotations could be multiplied, not only from Koopmans' essay, but from many other writers who have concerned themselves with the problem of "neutral money." Here it should be necessary perhaps only to call attention to the statements by F. A. von Hayek, in his *Monetary Theory and the Trade Cycle*, in which he speaks (e.g., p. 44) of "static theory" as being "deduced by directly contrasting the supply of and demand for goods," as compared with a theory in which "money (or strictly speaking . . . . indirect exchange)" has been introduced; see also p. 46 of the work cited, where Professor Hayek speaks of the "pure barter economy which is assumed in static theory." It should be pointed out that Professor Hayek himself—at any rate in the book cited (cf. pp. 210 f.)—is formally on record with respect to the definition of the "natural rate" given in the *Geldzins und Güterpreise* in terms which exonerate him of direct complicity in the details of Koopmans' attempt to reconcile the two definitions of the "natural rate" given in the text, in the way Koopmans has attempted to reconcile them. Yet the passages quoted from Hayek seem to me to indicate clearly that he would be prepared to assent to the proposition that the theory of general economic equilibrium has in fact been based upon barter assumptions.

uncertain terms, by Professor Cabiati, of Genoa and Turin, who has distinguished himself as one of the most outstanding enemies of the concept of "neutral money."[45] What follows is merely an attempt to carry on Professor Cabiati's battle on a front which is virtually prescribed for me by the subject of my paper.[46]

For, surely, whenever we speak of "the" theory of "general economic equilibrium," we must think of one name above all others—that of Walras.[47] The simplest answer, therefore, to Koopmans' contention is to ask how Walras himself dealt with money in his theory of general economic equilibrium. If it should turn out that it is simply not true, as a matter of doctrinal history, that Walras' system is constructed upon barter assumptions throughout, then the burden of proof surely rests upon writers

[45] See A. Cabiati, "La moneta 'neutrale' in un libro del Dr. Hayek," published originally in *La riforma sociale*, XLIII (1932), pp. 194 ff., and reprinted in the same author's *Crisi del liberismo o errori di uomini* (1934; see especially pp. 76 ff., 84). See also the section entitled "La moneta 'neutrale' e la *managed currency*," in the essay "50, o 60? Nel centenario di vita del dollaro," in *La riforma sociale*, XLV (1934), 37 f.

[46] This addition seems to me the more necessary in view of the fact that in the first of the two contributions of Professor Cabiati cited in the preceding note, he announces that he starts from the "*Paretian* concept of equilibrium" (*op. cit.*, p. 76; italics mine). As I point out below (pp. 185 f.), certain statements of Pareto seem to me to have added—I suspect unintentionally—to the confusion prevailing with respect to the matter under discussion, so that something is to be said for a movement "back to Walras" for an understanding of the issues involved.

[47] That this is inevitable is evidenced both by the practice of the writers who have been associated with this aspect of the concept of "neutral money" and by the comments to which their writings have given rise. Thus, for example, Hayek, though he does not mention Walras by name, states explicitly (*Monetary Theory and the Trade Cycle*, p. 42 n.) that "by 'equilibrium theory' we here primarily understand the modern theory of the general interdependence of all economic quantities, which has been most perfectly expressed by the Lausanne School of theoretical economics." See also Koopmans, *op. cit.*, p. 229, where Walras is included among those whose "theories of equilibrium" are alleged to be based upon the assumption of "direct exchange without the intermediary of any medium of exchange of any kind." Indeed, J. Tinbergen, in his summary of Koopmans' monograph, in "Annual Survey of Significant Developments in General Economic Theory" (*Econometrica*, II [1934], 33) feels warranted in stating that Koopmans' concept of "a neutral money system" is "characterized by the property that all prices and exchanged quantities of commodities and services behave as if the Walrasian conditions for equilibrium were fulfilled." Cf. also the same author's article "Der Einfluss der Kaufkraftregulierung auf den Konjunkturverlauf," in the *Zeitschrift für Nationalökonomie*, V (1934), 298.

like Koopmans to provide another support for their contention that the definition of the "natural rate of interest" given in the *Geldzins und Güterpreise* and that given in the *Lectures* come to the same thing, and indeed to provide an entirely different setting for much of the argument that has come to be associated with the concept of "neutral money."

V

I propose to demonstrate, once and for all, that the Walrasian system of general economic equilibrium is *not* constructed upon barter assumptions. I do not say that it is impossible to construct a system of general economic equilibrium upon barter assumptions; though once it is recognized that we must then make certain further assumptions with respect to the absence of specific types of "frictions" which, in fact, would be eliminated only by the use of money such an achievement, given the logomachies to which it would be bound to give rise, is perhaps not to be regarded as a particularly valuable one.[48]

The difference between the two questions—namely, (1) whether a system of general economic equilibrium *can* be constructed upon barter assumptions, and (2) whether the Walrasian system is in fact based upon such assumptions—will be best appreciated by noting carefully the way in which Walras built up his system in, say, the first edition of his *Éléments*. For here, as so often, a proper understanding of Walras' system really requires a study of the various transformations through which that system passed, and the various refinements which were added in the successive editions of the *Éléments* and the rest of Walras' writings.

[48] For an example of the way in which those who would insist that the theory of general economic equilibrium must be based upon "barter assumptions" are forced to assume the absence of frictions which in fact could be removed only by the existence of money, see Koopmans, *op. cit.*, p. 230. It is precisely the necessity of making assumptions of this kind that has provided a basis for the argument of those who have insisted that the theory of equilibrium *must* be based upon the assumption of the existence of money. Cf., e.g., the remarks of B. M. Anderson, Jr., in his discussion of Wesley Mitchell's paper "The Rôle of Money in Economic Theory," in the supplement to the *American Economic Review* for March, 1916 (pp. 168 f.). The same line of reasoning has been applied also against the idea of "neutral money." See, e.g., Cabiati, "La moneta neutrale, etc.," *loc. cit.*, p. 84.

Since Walras was never faced by the point-blank question: "*Can* a system of general economic equilibrium be based upon barter assumptions?" no explicit answer to this question can be found in his writings. What one finds is an answer which is represented, so to speak, by deeds rather than by words. For, in the first twenty-four "Lessons" of the first edition of the *Éléments*, one finds a gradual building of a structure which may, in one sense be called, and indeed was called by Walras himself, the "theory of general economic equilibrium," in which there has as yet been no introduction of money, in any of its functions.[49] To be sure, Walras did not at any point in these twenty-four "Lessons" insist that it was necessary to keep money out of the picture if one wished to carry the analysis to the particular stage which we are here discussing.[50] On the contrary, as we shall see presently, he proceeded immediately, in the "Lesson" that followed, to show how his results might be stated in much simpler terms by introducing that function of money which is summarized by the

[49] Thus, Walras gave to his "Lesson" 20 of the first edition of the *Éléments* the title "Theory of general equilibrium," though it is only in "Lesson" 25 that he proceeded to discuss the "Choice of an Instrument of Measurement and a Medium of Exchange."

[50] On the contrary, the only cases, in these first twenty-four "Lessons," in which Walras explicitly speaks of barter (*l'échange en nature*) are those in which *two commodities only* are being exchanged. See, e.g., *Éléments*, 1st ed., pp. 55, 74 (cf. the 5th ed., pp. 51, 70). The true significance of Walras' usage in these two cases will be clear when it is noted not only that, when in these early "Lessons" he is merely speaking of the general notion of "value in exchange," he does not hesitate to give examples of an exchange of goods for money (e.g., 1st ed., pp. 28 ff.; 5th ed., p. 26) but also that, in the second of the two passages cited at the beginning of this note, he is discussing the possibility that more than one point of "equilibrium" may be established when "two commodities exchange one for the other *en nature*," as contrasted with the case in which "several commodities exchange one for the other through the intermediacy of money"—in which case, he held (p. 156; 5th ed., p. 163) there would be only one equilibrium point. The similarity of his argument to the effect that when two commodities are being exchanged directly, a different "equilibrium" point will be reached, depending upon the initial price at which the parties to the exchange begin their bargaining (cf. p. 74 of the 1st ed.; p. 70 of the 5th ed.) should be enough to convince those familiar with Marshall's celebrated *Appendix F* on *Barter* that I am correct in my contention that Walras pointed out that he was dealing with barter conditions whenever he felt that it was important to stress the fact; and that if he did *not* stress his supposed "assumption" of barter, it was because he did not regard this assumption as being of essential importance for the substantive content of his system.

concept of *numéraire*, to say nothing of the introduction of money as an actual medium of exchange.[51] All that his analysis amounts to, up to this point, is what may be taken as representing his answer to the question whether or not a system of general economic equilibrium *may* be constructed in barter terms.

Yet, if we were to take these first twenty-four "Lessons" as *the* Walrasian statement of the theory of general economic equilibrium, we should be committing an inconceivably stupid blunder. Why stop at this point of his analysis rather than after the first eighteen "Lessons," which are concerned with the determination of the rate of exchange between two commodities only? It would be just as absurd to take, as representative of the Walrasian "system," the first of his four immortal memoirs, without noting that it is in the second memoir that he goes beyond Jevons and Menger (whose work he may be said to have paralleled in the first memoir) and proceeds to that exposition of the forces determining the value of exchange of *many* commodities which represents the really distinctive feature of the Walrasian system, so-called. We have had one historical example of this kind of treatment of Walras' system—that of the mathematician Bertrand, who, in his much-discussed critique of Walras, had the arrogance to chide the latter for having failed to see that any attempt to explain the actions of men in the market in terms of *rareté* "loses all

[51] In the light of what is said below (p. 172, and p. 184, n. 78) concerning Walras' own statements with respect to the fact that the commodity serving as *numéraire* is almost inevitably found, in practice, to be identical with the commodity serving as money, in the sense of a medium of exchange, it seems to me unnecessary to apologize for speaking of the concept of a *numéraire* as performing "one of the functions of money." This is in fact the usage adopted by some of Walras' followers, who have spoken without hesitation of *la fonction de "numéraire"* as one of the "three essential functions of money," the other two being *"la fonction de circulation"* and *"la fonction d'épargne"* (so, e.g., A. Aupetit, *Essai sur la théorie générale de la monnaie* [1901], pp. 35, 81 ff.). On the other hand, it seems to me consistent neither with Walras' own practice nor with the logic of the problem to say that the introduction of the concept of a *numéraire* means *ipso facto* the introduction of the concept of "money," pure and simple. This is unfortunately the impression created by the usage of Cassel, who seems to suggest that the mere fact of a "valuation of goods in money" (*sic*) is enough to warrant the conclusion that we are dealing with a "monetary economy." See Cassel's *Theory of Social Economy*, p. 49; and cf. the criticism by Wicksell, in his review of Cassel's book included in the English translation of Wicksell's *Lectures*, I, 225.

significance when it is applied to business men," who, Bertrand insisted, think only in terms of costs, selling prices, and profits.[52] As if, in his third and fourth memoirs, which Bertrand seems never to have read, Walras talked of anything else but "business men" and their cost-profit calculations. Do we need more than one episode of this sort in the history of discussion of Walras' system?

What one actually finds, as one goes on into the twenty-fifth "Lesson" of the first edition of the *Éléments*, is enough to make one wonder how anybody could ever have suggested that "the" theory of general economic equilibrium, and, specifically, the version of that "theory" given by Walras, was, as a matter of doctrinal history, based upon barter assumptions. I suspect that the principal reason for the confusion is somehow associated with an inability to understand precisely what Walras meant by his concept of a *numéraire*, and what the relationship of that *numéraire* is to what may properly be called "money."

I suspect, that is to say, that those who have insisted that "the" theory of general economic equilibrium is based upon barter assumptions have tacitly assumed that Walras intended to mean, by his *numéraire*, nothing more or less than an abstract *money-of-account*. I do not object to the description of Walras's *numéraire* as a *money-of-account*, though it seems to me worth noting that it was so described, not by Walras himself, but by Pareto.[53] On the other hand, I do most emphatically object to the description of the *numéraire* as an *abstract* money-of-account.

For, if it could be shown that Walras did mean by his *numéraire* an *abstract* money-of-account, then at least the beginnings of a

[52] See the *Journal des savants* for September, 1883, p. 508.

[53] See the *Cours*, I, 167. Pareto also spoke of the *numéraire* as being an "ideal" as opposed to a "concrete" money (cf. *Manuel*, p. 450)—a usage, so far as I know, never adopted by Walras. So far as I know, also, Walras himself never used the expression "money-of-account" in his theoretical writings. The expression appears, to be sure, in his essay "La caisse d'épargne postale de Vienne et le comptabilisme social" (see, e.g., pp. 389, 394 ff. of the *Études d'économie politique appliquée*); but he is here discussing the concrete proposal of M. Solvay and others to *create* a "money-of-account" which *would dispense with the use of actual cash*—all of which obviously has nothing whatever to do with the theoretical implications of an abstract "money-of-account" in the sense discussed in the text.

case might be made out for the suggestion that he introduced the idea of a *numéraire* precisely in order to bring out the fact that his whole system was built upon barter assumptions—and, more specifically, upon the assumption that exchange between commodities was to be thought of as taking place not *indirectly*, through money, but *directly*, through the barter of one commodity against another, without the intermediacy of money.[54] If the *numéraire* were in fact an abstract (i.e., non-material) money-of-account, in a sense which would make it the consciously hypothetical equivalent of the historically highly doubtful *macute of* Montesquieu, Mill, and others, then it must be obvious that *indirect* exchange in the sense of exchange of commodities against money and the subsequent exchange of money against commodity would be completely and utterly impossible.[55]

If anything is clear, however, in Walras' treatment of the *numéraire*, it is precisely that he could *not* have thought of the *numéraire* as an abstract money-of-account. This should have been suspected immediately by anyone who will take the trouble to consult the dictionaries on the meaning of the term *numéraire* in ordinary French speech. It means hard cash, or specie—in opposition, say, to bank notes; and while I am of course not suggesting for a moment that Walras intended his *numéraire* to be understood in the sense in which it was used in ordinary speech, it does seem to me difficult to imagine that, if he had intended that his *numéraire* should be taken as an abstract money-of-account, he should have gone out of his way to select a word the

[54] A statement of the kind of thing which I suspect is currently associated with Walras' concept of a *numéraire* may be found in Cassel's *Theory of Social Economy*, p. 51 f.: "Money shall . . . . only be introduced for the moment as a scale of reckoning. . . . . In order to get some sort of concrete idea of the monetary economy at this stage, we may conceive the reckoning in money merely as book-keeping, and payments in money as entries in books. For the moment we must ignore the existence of material money."

[55] It would obviously take me much too far afield to discuss the implications of an abstract money-of-account. I shall merely take this occasion to say that the subject still awaits an adequate treatment, which, on the side of doctrinal history, might profitably begin with the treatment of "ideal money" by F. A. Walker, in his *Money*, pp. 290 ff., and carry the discussion into both the earlier and later literature.

connotations of which are so far removed from those of the concept which he was supposedly attempting to describe.[56]

The real proof that the *numéraire* is not to be thought of as an abstract money-of-account, however, is to be found, not in the dictionaries or in the usages of popular speech, nor even in the writings of Pareto, who was himself guilty of using certain misleading expressions in this connection, but in the writings of Walras himself.[57]

That Walras' *numéraire* is to be thought of as being a material substance is clear, in the first place, from the fact that the *numéraire* is *always* taken as a concrete commodity. Whatever else it may be, it is always a material commodity among other material commodities.[58] Nor is this all. In the first edition of his *Éléments*, in the very chapter in which the concept of a *numéraire* is introduced for the first time, Walras went out of his way to argue in a way strongly reminiscent of the discussions carried on in the nineteenth century under the heading of "What Is a Pound?" and insisted that his *numéraire* must not be thought of

[56] For an example of the use of the word *numéraire* in ordinary French speech, see the quotations from Juglar in Walras' *Théorie de la monnaie*, pp. 19 ff. It is noteworthy, however, that Walras, apparently fully conscious of the fact that he had himself given a highly specialized meaning to the word, never, so far as I have been able to discover, used it in the ordinary sense in his theoretical writings, though he sometimes used it in this sense when addressing a popular audience. For an example of this latter practice, see his article "Le péril bimetalliste" (1895; reproduced in his *Études d'économie politique appliquée*, p. 179).

[57] For Pareto's usage, see, in addition to the references to the *numéraire* as an "ideal" as opposed to a "concrete" money which are cited in n. 53, above, his statement to the effect that a "money-of-account," which Pareto identifies with the *numéraire*, is "a money which does not exist materially" (*Cours*, I, 167). I am myself of the opinion that Pareto was not conscious that such a statement carried any implications of importance, and that he was merely writing here with the exasperating looseness that was often characteristic of him. All the more reason, however, for stressing the fact that Walras was *not* guilty of any looseness of expression with respect to the point under discussion.

[58] A proof of this proposition can be obtained from even the most superficial study of the *Éléments;* but if one wishes a characteristic bit of evidence, it should be noted that, in all those cases, in his theoretical writings, in which Walras discussed money without value for other than monetary uses, he would take pains to point out that he was using some commodity other than money as the *numéraire*. See, e.g., *Éléments*, 5th ed., p. 303.

as an abstract unit of account—say, a "franc," undefined with respect to its material composition. "The word franc," said Walras, referring in this connection to J. B. Say, "is the name of a thing that does not exist . . . . . Our standard for measurement must be a certain quantity of a certain commodity . . . . ."[59] I do not wish to enter here upon the issues of what I have ventured to call elsewhere "monetary metaphysics," which are involved in such propositions.[60] This *obiter dictum* of Walras is mentioned here merely by way of supporting the position that whatever Walras meant by his *numéraire*, it was not an abstract money-of-account, and of showing once and for all the groundlessness of the implication that Walras' very use of the notion of a *numéraire* showed that he wished to make it clear that his exposition of the theory of general economic equilibrium must be understood as being based upon barter assumptions.

But Walras' insistence upon the fact that the *numéraire* was to be thought of as a material commodity does not prove that his introduction of the idea of a *numéraire* was intended precisely to show that his system of general economic equilibrium was *not* based upon barter assumptions, if, among these "barter assumptions," we include the crucial one of what has been called "direct exchange." The *numéraire*, as such, at this stage of Walras' system, says nothing whatever about direct or indirect exchange, if by "indirect exchange" we mean the exchange of commodities with one another through the intermediacy of money. The possibility of "indirect exchange," in one sense, is indeed an essential condition of Walras' system whenever more than two commodities are involved; for, as Walras put it, we must always suppose that it is possible to carry on "arbitrage" transactions which would have the function of bringing, say, the value of commodity (A) as expressed in commodities (B), (C), and (D), in line with

[59] *Éléments*, 1st ed., p. 147 (cf. 5th ed., p. 153). No page reference is there given to Say; but the discussion to which Walras refers is probably that to be found in Say's *Traité*, Book I, chap. xxi, sec. 6.

[60] On what may be called the "epistemological questions" involved in discussions of this type, see my review article on Hawtrey's *The Gold Standard in Theory and Practice*, in the *Quarterly Journal of Economics*, Vol. XLII (1927), especially pp. 144 ff.

the value of commodity (B) as expressed in (C) and (D), or with the value of commodity (C) as expressed in (D).[61] If, however, Walras had been asked, at this stage of his argument, whether he thought of this "arbitrage" as taking place through an indirect exchange involving the commodity chosen as *numéraire*, I am sure he would have replied that it made no difference, so far as his argument had gone, whether one did or did not introduce the *numéraire* commodity as one of the links in the type of "indirect exchange" which performs the "arbitrage" function in his system.[62]

Still, Walras would probably have been amazed at the suggestion that his whole system was constructed upon the assumption that "indirect exchange" must *not* take place predominantly through the use of the *numéraire* commodity, on the ground that the very existence of the possibility of such indirect exchange (i.e., the introduction of money) "does away with the rigid interdependence and self-sufficiency of the 'closed' system of equilibrium."[63] He would have been still more amazed, I am convinced, at the suggestion that while the theory of general economic equilibrium might be constructed, and perhaps should be constructed,

[61] The necessity for "arbitrage" is introduced by Walras as soon as he has introduced the "third commodity" which forms the link between the theory of exchange between two commodities and the exchange of several commodities among themselves. See, e.g., the *Éléments*, 1st ed., pp. 106 ff., 114 ff. (5th ed., pp. 109 ff., 118 ff.). For the characterization of an "arbitrage" transaction as "indirect exchange" (though it is also often characterized as a "complementary exchange") see the 1st ed., p. 114 (5th ed., p. 118).

[62] This is evident from the fact that he stated explicitly that the "third commodity" might be *any* commodity. See, e.g., *Éléments*, 1st ed., p. 132 (5th ed., p. 135). It is for this reason that Zawadski seems to me formally correct in his objection to Schumpeter's attempt to "deduce the logical necessity for money" from the logical necessity of "arbitrage" transactions in the system of equilibrium. See W. Zawadski, *Les mathématiques appliquées à l'économie politique* (1914), p. 134; and cf. Schumpeter, *Wesen und Hauptinhalt der theoretischen Nationalökonomie*, pp. 273 ff. Yet the substance of Schumpeter's main argument would remain, it seems to me—and would be perfectly consistent with the assumptions underlying the Walrasian system—if we were to paraphrase his argument by the proposition of Professor Allyn Young apropos of Walras' *Éléments*, namely, that "when he introduces arbitrage transactions, Walras takes the *first* (*and most important*) *step* away from the assumption that exchanges are effected without the use of money." (Italics mine; see the note added by Professor Young on p. 202 of *Economic Problems, Old and New*.)

[63] The quotation is from Hayek, *Monetary Theory and the Trade Cycle*, p. 44.

upon the assumption of the existence of a *numéraire* which should perform that particular monetary function which Francis Walker summarized by the concept of a "common denominator of value," it cannot, and must not, be constructed upon the assumption that the overwhelming majority of exchanges are carried on by "indirect exchange," with a money-commodity serving as the intermediate link.

On this point—and it is obviously the decisive one—the evidence is immediate and overwhelming. In the very chapter of the first edition of the *Éléments* which I have been discussing (namely, the one in which the concept of a *numéraire* was introduced for the first time), we have Walras' explicit statement to the effect that "there exists a perfect analogy between the intervention of money [i.e., the use of a commodity as a medium of exchange] and the intervention of the *numéraire* [i.e., the use of a commodity as a common denominator of values]."[64] It is purely a question, Walras argued, of how far, and in which direction, we wish to carry our "abstraction": "Just as one passes, if one wishes, from the notion of an indirect price to that of a direct price by abstracting from the *numéraire*, so one may pass, if one wishes, from indirect exchange to direct exchange by abstracting from money."[65]

[64] See *Éléments*, 1st ed., p. 150 (5th ed., p. 156).

[65] *Ibid.* This statement of Walras should, it seems to me, dispose completely of the notion that in "the" theory of general economic equilibrium, it has always been felt that some deep-lying difference of principle permits, and perhaps demands, the introduction of a *numéraire* but forbids the introduction of an actual medium of exchange. And incidentally it should dispose of the notion that the introduction of the *numéraire* is somehow to be regarded as evidence that "the" theory of economic equilibrium is based upon "barter assumptions." When, therefore, Mr. Hicks remarks ("Léon Walras," in *Econometrica*, II [1934], 341) that "the *numéraire* . . . . is the only logical way by which we can suppose exchange (or lending) to take place *in natura*," I am afraid he may lead too many readers to suppose that it was precisely in order to make such *in natura* suppositions feasible that the idea of a *numéraire* was introduced. I am afraid, also, that further countenance is given to the notion that "*the* theory of general equilibrium" has been receptive to the introduction of a *numéraire* in a degree which it would not dream of extending to an actual medium of exchange, by a statement of another recent writer to the effect that "in the theory of general equilibrium, money has never been given that prominence which it deserves" because "it is treated either as a *numéraire* . . . . or as merely one of an almost infinite number of consumption goods." (So S. P. Chambers, "Fluctuations in Capital and the Demand for Money," in *Review of Economic Studies*, II [1934], 38.)

The two degrees of abstraction are thus entirely on a par. We may, in the earlier stages of the construction of our theory of general economic equilibrium, abstract from the use of a *numéraire*, as Walras did; but the fact that Walras himself proceeded to introduce the concept of a *numéraire* almost immediately shows, as clearly as one could wish, that his *own* system did not abstract from the use of the *numéraire*. Similarly, we *may*, if we wish, in the earlier stages of the construction of our theory, abstract from the use of a commodity as money in the sense of a generally accepted medium of indirect exchange; but the very fact that Walras, in the first edition of the *Éléments*, proceeded to introduce money, in this sense, at the very same time that he introduced the monetary function which is summarized by the concept of a *numéraire* shows, with all possible clarity, that Walras' system of general economic equilibrium did not abstract from the use of money in the sense of a concrete medium of exchange.[66] Where, then, precisely, is the basis for the suggestion that "the" theory

[66] It should be noted also that Walras did not stop with the mere statement that the introduction of, or abstraction from, money as a medium of exchange was methodologically perfectly analogous to the introduction of, or abstraction from, the *numéraire*. On the contrary, he did not hesitate, from this point on, in the 1st ed., to state his argument in terms of exchanges taking place through the intermediacy of money, whenever it suited his purpose to do so. So, e.g., *Éléments*, 1st ed., p. 154. Similarly, he finds it increasingly convenient to speak of the same commodity as both *numéraire et monnaie* (e.g., *Éléments*, 1st ed., pp. 151 ff.; 2d ed., p. 176) on the grounds that the practical advantages to having the same commodity serve as both *numéraire* and *monnaie* were so great as to make it virtually inevitable that the two functions would be found in practice to be performed by the same commodity (cf. the references given at the end of n. 78, below). There is obviously nothing contradictory to these practices of Walras in his further statement to the effect that money, when regarded as a medium of exchange, while it "constitutes a practical simplification," also represents a "theoretic complication," so that once he had already defined the rôle of money in his system, he felt free to "abstract" from it in his further discussion (1st ed., p. 175; cf. the 2d ed., p. 427). He was prepared to abstract from money only when it was safe to abstract from it—not otherwise. See, e.g., his statement to the effect that when one deals with the *numéraire et monnaie*, the conclusions of "pure economics" are so closely associated with conditions suggested by "applied economics" that not only is it true that it would be difficult to separate the two in certain parts of his theoretical system (e.g., the theory of "circulation") but also "a knowledge of the practical conditions of circulation is necessary for the theoretical conditions for the production and consumption of wealth" (*Éléments*, 1st ed., p. 171).

of general economic equilibrium has, as a matter of doctrinal history, always been based upon "barter assumptions"?

VI

The first hypothesis which one is moved to test as a possible explanation for the persistence of this notion is the hypothesis that in the later editions of the *Éléments* and in his later writings generally Walras abandoned his earlier position. But one has only to follow through with some care the changes made by Walras in the successive editions of the *Éléments* and his other writings to become convinced that these changes provide no basis whatever for the suggestion that the theory of general economic equilibrium as finally formulated by Walras is built upon barter assumptions.

Some of the changes introduced by Walras in his later writings undoubtedly did concern the *numéraire* and "money." It is perfectly clear, however, that these changes are changes merely of form and detail, and not of substance. Of these changes, perhaps the most important are, first, the fact that in his later editions the idea of a *numéraire* is introduced at an earlier stage in his discussion than that at which he introduced it in his first edition, and second—and herein is a notable difference from the first edition of the *Éléments*—the fact that it is introduced long before any extensive discussion of *money*, as the medium of indirect exchange, is introduced.[67] It may well be this circumstance that has made some readers of Walras misconceive the motivation underlying the use of the concept of a *numéraire* to the point

[67] The *numéraire* is introduced in the later editions as early as the eleventh "Lesson" (2d ed., p. 139, 5th ed., p. 119)—the "Lesson," in fact, in which Walras begins to discuss the "problem of the exchange of several commodities among themselves"; whereas in the first edition, instead of being introduced in the nineteenth "Lesson," which corresponds to the eleventh "Lesson" of the later editions, its introduction is deferred until "Lesson" 25 (p. 144), entitled "Choice of an Instrument of Measurement and an Intermediary of Exchange," the material of which appears in "Lesson" 14 in the later editions. On the other hand, whereas Walras' formal theory of money is introduced in the first edition ("Lessons" 29 ff.) almost immediately after the "Lesson" entitled "Exposition and Refutation of the Doctrines of Adam Smith and J. B. Say" ("Lesson" 27 in the first edition; "Lesson" 16 in the later editions) it is deferred, in the later editions, to almost the very last "Lessons'' in the book.

of supposing that it was nothing more nor less than a device designed to call attention precisely to the supposed fact that Walras' construction was based upon barter assumptions.

There is every reason to believe, however, that these two principal changes are entirely in the nature of what may be called "literary accidents." The first of these "accidents" was the clear determination of Walras to avoid the cumbersome procedure he had followed, in the earlier "Lessons" of the first edition of the *Éléments*, of attempting to express the price of any one commodity in terms of each other commodity individually. His new method was to proceed directly, as soon as he had finished with the case of the exchange of two commodities against each other, to the idea of a *numéraire*, i.e., a single commodity in which all the prices of all commodities other than the commodity serving as *numéraire* should be expressed.[68] Surely this change in exposition does not involve any essential change of substance so far as the place of "barter assumptions" in his system is concerned. The "barter assumptions" were there, in the earlier formulations of Walras' system, before the concept of a *numéraire* was moved up to facilitate the exposition. It can hardly be argued that this moving-up of the concept of a *numéraire* was itself designed to emphasize the presence of barter assumptions.

The second literary accident which led to the separation of the discussion of the *numéraire* from the discussion of money as a medium of exchange in Walras' later writings was of an even more trivial origin. Between the time of publication of the first edition of the *Éléments* and the second edition, Walras had been working intensively at the problem of the value of money and his

[68] Contrast, for example, the statement on p. 131 of the 1st ed. of the *Éléments*, in which the price of any one commodity is spoken of as being expressed in "all the others," with the statement, on p. 152 of the 2d ed. (5th ed., p. 133), of what is essentially the same proposition except that prices are now stated *en numéraire*. That Walras, even at the time he wrote the version of the *Éléments* which appeared in the 1st ed., was perfectly well aware that he might have "simplified" his formulation by introducing the concept of a *numéraire* at an earlier stage in his exposition, is clear from the statement on p. 144 of the 1st ed., where he says that the "theorem of general equilibrium" *could* be stated more briefly by means of the introduction of a *numéraire*.

scheme for monetary reform.[69] The material on money which he wished to include in his treatise had in consequence grown to such proportions that he felt that it deserved a compartment all by itself—*not* because he felt that what he had to say on money was to be thought of as external to the theory of general economic equilibrium itself, but merely because considerations of convenience suggested its presentation as a separate part of the treatise.[70]

Virtually all the other changes introduced by Walras with respect to the relationship between *numéraire* and "money" follow from one or the other of these two major changes. Thus, we find instances in which *numéraire* is substituted, in later editions, for the "money" or the "*numéraire* and money" of Walras' earlier editions, for the obvious reason that the idea of a *numéraire* had already been introduced, whereas that of "money" had not yet formally appeared.[71] Thus, also, Walras thought it advisable, from time to time, to remind the reader that, though he

[69] It was, in fact, this preoccupation of Walras with monetary problems which delayed the appearance of the 2d ed. of the *Éléments*. See p. ix of the Preface to the 2d ed.

[70] Cf. the remarks of Walras himself, *loc. cit.*

[71] For examples of such changes, cf. pp. 152 and 179 of the 2d ed. (pp. 133 and 160 of the 5th ed.) with pp. 131 and 154 of the 1st ed.; cf. also p. 101 of the *Théorie de la richesse sociale* with p. 288 of the 2d ed. of the *Éléments* (p. 268 of the 5th ed.). Particularly interesting is a comparison between p. 176 of the 2d ed. and p. 157 of the 5th ed. In the first of these two passages, Walras was still speaking, in the manner of the 1st ed. (cf. p. 151 of that edition) of *le numéraire et monnaie;* whereas in the later passage, he speaks only of *numéraire.* The reason for the difference in the later edition is obviously that Walras, in revising the first passage, remembered that he had not yet formally introduced money as a medium of exchange, and therefore regarded the formulation of the 2d ed. as a slip to be corrected in later editions. Interesting, also, is a comparison of pp. 60 f. of the *Théorie de la richesse sociale* with p. 211 of the 2d ed. (pp. 191 f. of the 5th ed.). In the former, "products" are paid for "*en monnaie*"; in the latter, the price is "cried" in "*numéraire.*" That these changes were made by Walras only because of the new arrangement whereby the *numéraire* was introduced at an earlier stage of the exposition than was "money" in the sense of an actual medium of exchange, is, however, made perfectly clear by the fact that, once he had begun his formal discussion of money in the 2d ed. of the *Éléments*, he went out of his way to call attention to the fact that "from now on" he intended to speak of the market for "*capital-monnaie,*" and would no longer speak of the market for "*capital-numéraire*" (p. 380 of the 2d ed.).

was not abstracting from the use of a *numéraire*, he *was* abstracting from money at one particular stage of his argument.[72]

Yet, to take these slight changes as evidence of a fundamental change of view on the part of Walras would be to close one's eyes to every other bit of evidence available. For one thing, he never, so far as I know, explicitly avowed any such change of view—though that he would have been prepared to do so if such had been the fact is abundantly clear from other instances in which he had made changes in the substance of his analysis.[73] For another, the particularly explicit statements to which attention was called above by way of demonstrating that he did not, in his earlier writings, regard his *completed* system as being based upon barter assumptions, are reproduced in his latest writings. He repeated, for example, his statement that the abstraction from money was precisely on a par with the abstraction from a *numéraire*, in that both were in the nature of possibilities, rather than necessities, at certain stages of the argument.[74] He went out of his way, indeed, to insist that it is *necessary*, in any complete exposition of the "mechanism of free competition and production," to have not only "a commodity in which the prices of other commodities are cried" (i.e., a *numéraire*) but also "a commodity for which services are sold, on the market for services, and with which products

[72] See, e.g., the *Théorie de la richesse sociale*, pp. 61, 68; cf. the 2d ed. of the *Éléments*, pp. 208, 214, 265 (pp. 188, 195, 245 of the 5th ed.). It should be noted, however, that Walras took special pains to indicate that this was merely a temporary device, forced upon him by the plan of exposition he had adopted, and that he intended, at a later stage in his argument, to bring in *money* itself. See, e.g., *Théorie de la richesse sociale*, p. 68, and p. 237 of the 2d ed. of the *Éléments* (p. 217 of the 5th ed.).

[73] The most striking instance of this kind, so far as Walras' treatment of money is concerned, is of course Walras' announcement of the change in his treatment of the "demand for money" as between the first and 2d eds. of the *Éléments*. See, on this matter, my "Léon Walras, etc.," p. 575. See also his own account of the "eight stages" through which he passed in arriving at his final conclusions with respect to monetary policy and monetary reform, in the *Théorie de la monnaie*, pp. 3–6. More generally, see the characteristic remarks by Walras on the duties of a "man of science" in such matters, on pp. 18 f. of the same work.

[74] See, e.g., p. 156 of the 5th ed. of the *Éléments*. See also the references given in nn. 71 and 72, above, to those passages in Walras' later works which make it particularly clear that his temporary abstraction from money was merely an expository device at a particular stage in his argument.

are bought, on the market for products, and which serves as *money*."[75] *Of course* he abstracted from money at certain stages of his argument; but, for that matter, he suggested, in the later editions of the *Éléments*, that one might abstract not only from money but also from the existence of those whom he called *entrepreneurs*.[76] No one pretending to be conversant with the details of the Walrasian system would suggest that Walras himself abstracted from the existence of entrepreneurs in the complete version of his description of the processes by which equilibrium is obtained and maintained.[77] Yet, it would be no more reasonable to argue that because, at early stages in his argument, Walras abstracted from the existence of money, his whole system of general economic equilibrium is based upon barter assumptions!

Indeed, as one reads Walras' writings in their final formulation, one finds things which are explainable only if one is convinced, as I have come to be convinced, that the recent insistence upon the necessity for constructing a theory of general economic equilibrium upon barter assumptions is a matter which would have seemed incomprehensible to Walras himself. How, otherwise, are we to explain those occasional instances in which he

[75] See, e.g., the *Théorie de la monnaie*, p. 38; and cf. the 2d ed. of the *Éléments*, p. 375.

[76] See, e.g., the 2d ed. of the *Éléments*, p. 214 (p. 195 of the 5th ed.). It is to be noted especially that, in the passage cited, the abstraction from the existence of entrepreneurs and from money as a medium of exchange are put exactly on a par.

[77] The place of the entrepreneur in the Walrasian system should be so obvious from even the most casual study of Walras' writings that it is quite unnecessary to labor the point. It should suffice here to call attention to the fact that Edgeworth regarded Walras' treatment of "the function of the entrepreneur" as his "next most important contribution to the stock of economic ideas" after his discovery of the principle of marginal utility. See Edgeworth's review of Walras in *Nature*, cited in n. 4, above; cf. also p. 20 of the article by Edgeworth in the *Révue d'économie politique* cited in the same note, and his *Papers*, II, p. 378. Incredible as it may seem, Auspitz and Lieben, in the course of the none-too-happy controversy between Walras and them in the *Révue d'économie politique*, Vol. IV (1890), actually ventured to chide Walras, chiefly on the basis of the passage cited in the preceding note, for having "completely pushed to one side" (*écarter*) the entrepreneur! (*op. cit.*, p. 604). The charge is so patently absurd that the critics themselves seem to have been somewhat uneasy about it; for they proceeded to give references to the *Éléments* which are clearly inconsistent with any such accusation, though the critics themselves seemed to imply that the inconsistency somehow lay with Walras.

ignores, for the moment, the theoretical distinction between the function of a *numéraire* and the function of "money" as a medium of indirect exchange, and, remembering only his conviction, expressed already in the first edition of the *Éléments*, that, in practice, the same commodity will almost inevitably serve both as *numéraire* and *monnaie*, he actually contrasts a situation in which a *numéraire* is used with a situation in which *barter* prevails, or uses the term *numéraire* in a context in which only a *numéraire* which was also money was being used?[78] How are we to explain those passages, including some which appear in the latest editions of his writings, in which—as in those of his equations which are intended to bring the phenomena of saving, credit, and the rate of loan-interest into the picture of general economic equilibrium—he introduces, without apology of any kind, the concept of "money-capital" (*capital-monnaie*) as an essential element in the determination of that equilibrium?[79] How are we to explain his continued insistence upon the distinction, which he regarded as of the greatest importance, between the market for "*le capital*," on the one hand, on which was determined the rate of interest, properly so called, and on which *money* was lent, and the market for "*les capitaux*," on which capital-goods were sold or exchanged, on the other?[80] But, more than anything else, how are we to explain away those specific statements, including some

[78] For an instance in which Walras contrasts a situation in which a *numéraire* is used with one in which barter prevails, see, e.g., the 2d ed. of the *Éléments*, pp. 288 f. (pp. 268 f. of the 5th ed.). For an example in which Walras used the terms *numéraire* in a context which makes it necessary to suppose that the *numéraire* is also functioning as money, see his *Études d'économie politique appliquée*, p. 363. For Walras' belief, with respect to the virtual inevitability of the coincidence of the *numéraire* commodity with the money-commodity in actual life, see the *Éléments*, 1st ed., p. 174, and the *Théorie de la monnaie*, p. 48 (*Études d'économie politique appliquée*, p. 101).

[79] See, e.g., the *Théorie de la richesse sociale*, p. 104; *Théorie de la monnaie*, pp. 26 f. (*Études d'économie politique appliquée*, p. 86); *Éléments*, 2d ed., pp. xxii, 217, 380 ff.; *Éléments*, 5th ed., p. 300. See also the *Études d'économie politique appliquée*, pp. 175, 288, and especially his important, though much neglected, *Théorie du crédit* (1898), reprinted in the same volume—particularly pp. 307, 316, 318, 329 f., 335.

[80] See, e.g., the *Théorie de la richesse sociale*, pp. 86, 106, 113; and especially his *Théorie du crédit*, which, it will be remembered, was published as late as 1898 (cf. particularly pp. 307, 335, of the *Études d'économie politique appliquée*).

which appear in his very latest writings, in which he made it perfectly clear that he himself regarded the incorporation into his general system of money, when considered as the medium of exchange, as the crown and completion of that system?[81]

From all of this it seems to follow clearly that whatever hypothesis we adopt as an explanation for the notion that "the" theory of general economic equilibrium, as that theory was stated by Walras, is based upon barter assumptions, it cannot be that Walras first thought of including money in his system, and then consciously eliminated it from that system. There remains only one alternative hypothesis—and that is that our notions as to what Walras said have come to us, not through a study of his writings, but through the confusing haze which has been engendered by the writings of those who came after him. One thinks, in this connection, of Cassel, with his misleading diatribes against the "neglect" of money in systems prior to his own, and his misleading use of the notion of an abstract money-of-account.[82] One thinks also of Pareto, with his loose identification of the *numéraire* with an "ideal money," or a "money-of-account" which "does not exist materially," and his loose statements which have been interpreted as meaning that the place of money lies outside or "comes after" the theory of general economic equilibrium.[83] In

[81] See, e.g., his characterization of his own treatment of money as representing the solution of "the fourth great problem which presents itself in pure economics after those of exchange, production, and capitalization and credit," p. x of the 2d ed. of the *Éléments;* cf., also, p. x of the 4th ed. It should be noted especially that on p. 297 of the 5th ed. (the point at which he introduces virtually verbatim the memoir entitled "Équations de la circulation" which he had read in 1899 to the *Société vaudoise des sciences naturelles*) he begins by announcing that the time has come to introduce money "into the general and complete problem of economic equilibrium."

[82] See, on these matters, nn. 35 and 54, above.

[83] On Pareto's treatment of the *numéraire*, see nn. 53 and 57, above. Characteristic of the type of misleading statement to which reference is made in the text is that which appears on p. 209 of the *Manuel*, in which Pareto states that "the theory of money ought to come after that of the general theory of equilibrium." It seems to me significant that Professor Young should have quoted this passage in support of his contention that it was necessary to question what he regarded as a too-generally accepted "right to eliminate money from a general view of the valuation process." See *Economic Problems, New and Old*, pp. 199 n., 202. As I have suggested in n. 57, above, I am myself of the opinion that statements of the kind quoted from

any case, wherever the responsibility is to be laid, it is not at the door of Walras himself.

Though the matters I have been discussing are primarily of interest to the historian of doctrine, nevertheless, in the light of the persistent failure to study and restudy the contributions of Walras to specific problems of analysis on which he anticipated so many writers who came after him, the matter must not be left as a curiosity in the field of *Dogmengeschichte*. Though he did not pretend, by his incorporation of money into his general theory of equilibrium, to go beyond the limits of static theory, Walras, in one of the latest of his writings, made it clear that he hoped he had cast that theory into such a form that future workers in the field of what he himself called "dynamics" could take hold of the problem at the point at which he left off.[84] Slowly, but surely, the stage is being set for the adducing of further evidence that Léon Walras, on this point as on so many others, saw farther and more clearly not only than most of his contemporaries but farther than most of us, of a later generation, have yet realized.

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Pareto represent merely loose exposition on his part, rather than any deep-seated conviction with respect to the issues involved. Otherwise, it would be difficult to explain precisely why, for example, Pareto himself, in his article "Économie mathématique," in the *Encyclopédie des sciences mathématiques*, I, No. 4 (1911), 593, should have begun his exposition with a formulation of the theory of prices in which "money" is introduced immediately, the *numéraire* (which, with typical carelessness, is left undefined) appearing only later in the exposition (e.g., pp. 631, 633)! Yet there seems to me no doubt that statements of the kind quoted at the beginning of the note have created misconceptions as to the rôle which is assigned to money in "the" theory of general economic equilibrium. Cf., e.g., what is said with respect to Walras, in this connection, by G. Myrdal, in his extremely important paper "Der Gleichgewichtbegriff als Instrument der geldtheoretischen Analyse," in *Beiträge zur Geldtheorie* (ed. Hayek), 1933, p. 371.

[84] See, e.g., pp. 298, 302 of the 5th ed. of the *Éléments*. On the relation of this part of the 5th ed. to the memoir of 1899, see n. 81, above. I should like to take this occasion to express my thanks to Professor Hayek and Dr. P. N. Rosenstein-Radan, through whose kindness I was provided with a photostatic copy of the original memoir a few years ago.

UNPUBLISHED PAPERS AND LETTERS OF LÉON WALRAS[1]

> "Je ne suis pas un économiste. Je suis un architecte. Mais je sais mieux l'économie politique que les économistes."—LÉON WALRAS.

INTRODUCTION

THE unpublished papers and letters of Léon Walras constitute a mass of documents of great scientific importance and of deep human interest. Not only do they shed light on the inner workings of his mind as he developed his system of general economic equilibrium, but they also reveal the intimate personal trials and tribulations of a pioneer scholar hewing out new paths despite the "scoffs and scorns and contumelious taunts" of his contemporaries. They frequently illuminate obscure passages of his published works; and, incidentally, they discover to us traits of character and developments of thought of his correspondents.

The original unpublished documents to which I refer are located mainly in the University of Lausanne, which serves as a depositary for them. Some few of these papers and letters have found their way to the University of Lyons, but these belong to the earlier and less interesting years of Walras' life. After Walras' death the bulk of this scientific correspondence was painstakingly copied by his daughter, Mlle Aline Walras, from almost illegible rough drafts; and these copies were handed over to Professor Etienne Antonelli for eventual publication.[2]

[1] Paper read before the Econometric Society in joint session with the American Economic Association and the American Statistical Association, as part of the Walras centennial program, Chicago, December 28, 1934.

[2] It was thanks to the courtesy and generosity of Mlle Aline Walras and of Professor Etienne Antonelli that I was first permitted to consult Mlle Walras' copies in Paris. For a long time I could not discover where the originals were. Finally, last summer (1934), I traced them to the Salle des Commissions at the Palais de Rumine of the University of Lausanne, where they lay neglected in neat bundles gathering

Among the papers I have seen and copied is Léon Walras' complete autobiography, only part of which was published in 1908.[3] This autobiography was composed mainly at the instance of one of our pioneer mathematical economists, Professor Henry Ludwell Moore, who on May 30, 1904, wrote to Walras as follows:

> You yourself have realized how essential it is for the progress of the social sciences that the man should be known as well as his work, and you have, consequently, told the world what little it knows about Gossen. The memoirs of Jevons exist, and as you know, I have discovered the Souvenirs of Cournot. We must have the autobiography of Walras.

In the Walras centennial year it is eminently appropriate to recount the story of his life. And since it was a life wholly devoted to science, we shall have occasion, in the course of these biographical remarks, to refer to the scientific and philosophical adventures described in his letters and personal notes.

1834–70

Léon Walras was born in Evreux, a provincial town of Normandy, on December 16, 1834. He received the ordinary primary and secondary education of a French boy of his class. He studied both literature and mathematics. At the age of nineteen he attempted to enter the École Polytechnique, but failed in the competitive entrance examination for want of sufficient training in mathematics. He resolved to try again the following year, in the meantime reading a great deal of mathematics which he had hitherto neglected. Among the books he then

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upon them the dust of passing decades. The chancellor was good enough to allow me access to these papers. I was, however, requested not to publish my collection of these documents, since prior rights of publication belong to others. I wish to take this occasion to express my gratitude also to the Social Science Research Council and to Northwestern University, without whose material assistance in the form of grants-in-aid my pursuit of these papers would have been impossible.

[3] "Leone Walras—autobiografia," edited by M. Pantaleoni, in *Giornale degli economisti*, 2d ser., XXXVII (December, 1908), 603–10. Some of Walras' correspondence has been published as well, viz: "Lettres inédites de et à Walras" (letters between Léon Walras and his father) in *La Révolution de 1848, Bulletin de la Société d'Histoire de la Révolution de 1848* (Paris: Cornély), IX (1912–13), 179–98, 286–309, 367–82, 427–46; X (1913–14), 138–56, 231–53, 327–43, 405–31; XI (1914), 508–25; the correspondence between Léon Walras and Henri Laurent, "De l'unité de valeur" in the *Revue d'économie politique*, 48e année, No. 4, pp. 1146–78, edited by Etienne Antonelli; and "Léon Walras et sa corréspondance avec Augustin Cournot et Stanley Jevons avec une note d'Etienne Antonelli," *Econometrica*, III, No. 1 (January, 1935), 119–27.

studied was one published in 1838 by his father's classmate, Augustin Cournot: *Recherches sur les principes mathématiques de la théorie des richesses*. Though he read, marked, learned, and inwardly digested this great book, he again failed in his attempt to enter the École Polytechnique and sought refuge in the École des Mines. But mining engineering did not interest him. He took to writing novels. His principal novel, *Francis Sauveur*,[4] published in 1858, throws some light on what manner of man he was.

We see him in 1858, as a young man of twenty-four, bitterly disillusioned by the results of the Revolution of 1848, which at first seemed to hold out so many promises to the ardent and generous youth of the time. Though disappointed, he could never completely abandon his pursuit of a social ideal. In 1858 he stood at the fork of the roads: Should he pursue a scientific career and demonstrate the logical validity of his ideal, or should he pursue a literary career and write social novels? He was troubled by a sense of the futility of idealism in a world so grossly and so iniquitously selfish. One of his characters in *Francis Sauveur*, forced into a conventional position, cries out: "Since the world has won a victory over me, I am going to retire to a place of solitude where the world cannot reach me and where I can remain faithful to my dream."[5] It was in order to remain faithful to his dream that Léon Walras later in life did retire into an ivory tower of pure science, though opportunities for a political career had been open to him.

Walras, however, often fretted in the ivory tower where his ideal could only be realized in the abstract. From time to time he would indulge himself in an escapade. This impatience explains certain lapses from the logical rigor which generally characterizes his work. For example, the logically untenable conclusion that collective satisfaction is maximized under perfect competition assuming the absence of class pricing can only be understood in the light of the psychological history of the author.[6] Walras' fervent pleas for the nationalization of the soil[7]

[4] Another of Léon Walras' literary products belonging to the same epoch was "La lettre" published in the *Revue française*, 5ième année, tome XVI (1859).

[5] *Op. cit.*, p. 225.

[6] Léon Walras, *Éléments d'économie politique pure* (édition définitive; Paris, 1926) (hereafter referred to as the *Éléments*), p. 99. See also Knut Wicksell's *Lectures on Political Economy*, I (London, 1934), 73 ff., for a discussion of this point.

[7] E.g., "Théorie mathématique du prix des terres et de leur rachat par l'état," read before the Société Vaudoise des Sciences Naturelles at Lausanne in 1880; first published in the *Théorie mathématique de la richesse sociale* (Lausanne, 1883), pp. 177–253, and again in the *Études d'économie sociale* (Paris, 1896), pp. 267–350.

and for a monetary system based on gold coupled with a compensating silver token currency[8] are also manifestations of this indomitable spirit of youth which never left him to his dying day.

It was on a summer evening in 1858 that Léon Walras decided once for all that the path he would follow was to be the scientific path. The circumstances of his decision were dramatic. He was walking with his father along one of the mountain streams that grace the south of France. The elder Walras was endeavoring to persuade his son that there would always be enough *littérateurs* in the world, but what was needed was a social scientist. In his autobiography written nearly half a century later Léon Walras related that, as they passed a small country villa called "Les Roseaux," he promised to abandon literature and to dedicate his life to the continuation of his father's work. Thus the die was cast.

So phenomenal an accomplishment as the creation of the Walrasian system of general equilibrium can only be explained by the fact that this work was the fruit of two generations of continuous scientific industry. While John Stuart Mill represents in some respects the attitude of revolt of the son against the father, Léon Walras, scion of a *petit bourgeois* family *"très honorable, très catholique, très royaliste"*[9] represents the spirit of veneration of the son for the father. In describing to Professor Moore the genesis of his system Léon Walras wrote on January 2, 1906: "To my father I owe the economic definitions which are the basis of my system, and to Cournot I owe the mathematical language which is most apt for formulating this system. . . . ."

To be sure, he took over bodily from his father's *De la nature de la richesse* (Paris, 1831), his peculiar and useful distinction between capital and income, the former referring to all social wealth that may be used more than once, and the latter referring to those items of wealth which are used up as soon as they are used at all.[10] Moreover, many of Léon Walras' categories and definitions of factors of production were copied almost verbatim from his father's later book, *Théorie de la richesse sociale*, published in 1849. For example, both father and son rejected the current land-labor-and-capital classification, adopting in-

[8] E.g., "Monnaie d'or avec billon d'argent régulateur," first published in the *Revue de droit international*, December 1, 1884, pp. 3–16, and again in the *Études d'économie politique appliquée* (Paris, 1898), pp. 3–19.

[9] L. Walras, "Un initiateur en économie politique, A. A. Walras," published in *La revue du mois*, August 10, 1908, and cited by L. Modeste Leroy, *Auguste Walras* (Paris, 1923), p. 1.

[10] Auguste Walras, *op. cit.*, p. 40. Cf. *Éléments*, p. 177.

stead land-services the source of which is land, labor-services the source of which is personal faculties, and capital-services the source of which is capital in the narrow sense of artificial or produced capital goods.[11] Certainly, the more refined definitions borrowed from his father enabled Léon Walras to develop a theory of production of remarkable clarity and logical consistency within the limits of the problem he set for himself. Would that his filial piety had stopped there! For not only did he appropriate some of his father's excellent definitions, but unfortunately he also remained faithful to much of his father's antiquated terminology. Thus, while he endowed his father's vague expression "extensive utility" with the mathematically precise meaning of the length of the intercept of a collective demand curve on the quantity axis, and the expression "intensity of utility" with the equally precise meaning of the slope of the demand curve, his use of the word "utility" in this connection is, however, confusing, for by his own subsequent use of the term, he properly restricted it to the realm of individual psychological reactions to goods.[12] Malthus was better advised when he called this same relation of quantity to price "intensity of demand."[13] A most annoying piece of outworn terminology, again taken from his father, is his use of the word "*profits*" in one connection to designate capital-services while he uses the same word in another connection to describe the entrepreneur's gain when price exceeds cost.[14] Still another example is the word "*numéraire*" used by Auguste Walras as a synonym for money of account, but given a subtly different connotation by Léon Walras, who means by it a standard commodity the value of a unit of which may serve as a standard of value.[15] That he

[11] Auguste Walras, *Théorie de la richesse sociale* (1849), pp. 71–72. Cf. *Éléments*, pp. 176–77.

[12] Auguste Walras, *De la nature de la richesse* (1831), p. 150. Cf. *Éléments*, pp. 72–74.

[13] T. R. Malthus, *Principles of Political Economy* (2d ed.; London, 1836), pp. 65–66 n.

[14] *Théorie de la richesse sociale*, pp. 71–72. Cf. *Éléments*, pp. 181 and 204.

[15] "Ces réflexions [i.e., those A. Walras had just quoted from Germain Garnier's *Histoire de la monnaie* (1819), I, 77] ... expriment très-bien la différence qui existe ... entre deux choses essentiellement distinctes, la *monnaie réelle* et la *monnaie de compte*, ou, si l'on aime mieux, la *monnaie* proprement dite et le *numéraire* ... ," (A. Walras, *De la nature de la richesse*, p. 297). Cf. *Éléments*, p. 150. In fact, both father and son, each in his own way, used the word *numéraire* in a peculiarly strict sense, for ordinarily the word in French has the same loose and ambiguous connotation as the English word "currency." See Michel Chevalier's article on "Monnaie" in Coquelin and Guillaumin's *Dictionnaire de l'économie politique* (2d ed.; Paris, 1863), II, 201.

meant definitely to depart from his father's use of the term is clear from a letter written on September 14, 1894, to Enrico Barone apropos of the latter's article "Sulla Consumer's Rent," which appeared in the *Giornale degli economisti* in 1894. Walras said: ". . . . the word numéraire is not exactly rendered by your 'moneta ideale.' What is needed is a special word to express a special idea, namely, that of a commodity in terms of a unit of which prices are expressed." Most unfortunate of all in the inherited galaxy of terms is the ambiguous "*rareté*," which the elder Walras described as a ratio between the amount of wants for a good and the amount of the good available for the satisfaction of these wants.[16] Out of this nebulous concept Walras developed the precise concept of a derivative of utility with respect to quantity,[17] but he did not, alas, discard his father's term or free himself from his father's pursuit of a cause of value.[18]

For better or for worse, Auguste Walras' work was the starting-point of his son's theoretical constructions. What influenced the son even more than these definitions was his father's suggestion, originally made as far back as 1831, that economics is a mathematical science.[19]

It was not sufficient for Léon Walras to entertain the noble ambition of creating a new mathematical science of economics. He needed material means, and these means were sadly lacking. There was no money in the family. As for an academic chair in France, this was impossible, for he stood outside the charmed circle of those who were content to sing unmitigated praises of the existing social order. The official French economists of that epoch formed a closed corporation made up of worthy individuals who were interested in economics as a branch of politics and not as a branch of science. Since this same group also controlled the economic journals, Walras soon found himself excluded from this avenue of expression as well. The only thing left for him to do was to take whatever jobs he could find and devote his spare moments to writing essays on the application of mathematics to economics.

Among his early unpublished papers which I found at the University of Lausanne were two closely written manuscripts both entitled "Application des mathématiques à l'économie politique," one of eight pages, called *première tentative*, dated 1860 and the other of forty-seven pages, called *deuxième tentative*, dated 1869–70. They were pathetic efforts, giving not the slightest inkling of what was presently to follow when a

[16] *De la nature de la richesse*, pp. 279–80.

[17] *Éléments*, p. 76.

[18] *Ibid.*, "Lesson" 10.

[19] *De la nature de la richesse*, pp. 278 ff.

real opportunity finally fell to his lot. The best he could do in his effort of 1869–70 was to translate into the most jejune mathematical symbols his father's absurd definition of "*rareté*." He attempted to prove that the proposition that price varies directly with demand and inversely with supply was not devoid of meaning, as Cournot had thought. There was no trace at all of the concept of a functional relationship between utility and quantity.

The reason for this early scientific barrenness is perfectly apparent from his letters and autobiography. He was completely absorbed by the struggle to make a living for his family, and he was eaten by the canker of bitter disappointment. During the period from 1858, when at the age of twenty-four he took the vow before his father to consecrate himself to economics, until 1870, when he finally did obtain a chair, he was driven continuously from pillar to post and sorely tried. He started out as a journalist but was soon discharged for the independence of his opinions. He worked for a while at the secretariat of the Chemin de fer du Nord. Then he became a managing director of the Caisse d'escompte des Associations populaires, until the bank failed.[20] And finally he was a corresponding secretary for a large private banking establishment in Paris. In the end, when he received his call from the University of Lausanne, he had to ask the *recteur* for an advance on his salary to meet his traveling cost. He did not have enough money to transport his family to Lausanne until a later date.

And yet the experience of those twelve years had an important bearing on his intellectual development as an economist. It gave him first-hand contact with concrete economic reality. This practical background is reflected in "Lesson" 19 of his *Éléments*, which deals with the relationship between accounting and economics, and also in "Lessons" 33 and 34, which give a lucid description of the process of issuing fiduciary paper and of establishing international exchange rates.

Though he could not elaborate any detailed scientific theorems at that time, he could and did reflect upon the general philosophic structure of his system. In fact, this was adumbrated very early, as is evident from a letter written on December 23, 1862, to M. du Mesnil Marigny proposing literary collaboration. Thus, at the age of twenty-eight he had a complete presentiment of his life work as consisting, in the first place, of the creation of a pure science of economics dealing with the logically inevitable consequences of perfect competition; in the

[20] Failure resulted largely because the borrowing co-operatives refused to follow Léon Walras' counsels not to sell below current market prices and not to pay more than current wages.

second place, of the creation of an applied science of economics dealing with the theory of the choice of a most efficient and most useful economic organization from the point of view of the production of social wealth; and in the third place, of the creation of a science of social economics designed to examine a given economic structure, its distribution of wealth, and its methods of taxation, from the point of view of social justice. As is seen from the very titles of his three main works, he never swerved from his original plan. The first book of the Walrasian trilogy, written after 1870, his *Éléments d'économie politique pure*,[21] represents a system of necessary economic relationships; the second, *Études d'économie sociale* (1896), is concerned with such problems of social ethics as communism, individualism, private property, nationalization of land, and public finance; while the third book, *Études d'économie politique appliquée* (1898), discusses practical issues like bimetallism versus monometallism, monopoly versus free competition, free trade, the rôle of banking and credit, and the uses and abuses of stock-market speculation.

Walras' interest in taxation as an instrument of social justice led him to participate in an international taxation congress held at Lausanne in 1860.[22] He made so excellent an impression that ten years later, when a chair in political economy was established at the University of Lausanne, Léon Walras was appointed on a trial one-year contract. He held the chair until he retired for reasons of ill health in 1892, and was succeeded by his disciple, Vilfredo Pareto.

1870–92

Léon Walras opened his first lecture, which he delivered on December 16, 1870, as follows:

The Rector's kind words of introduction add to the emotion that I feel. For fifteen years I have been fervently hoping for the day when I might come

[21] There were, in all, five editions of the *Éléments d'économie politique pure ou théorie de la richesse sociale:* 1874–77, 1st edition (2 vols.); 1889, 2d edition (1 vol.); 1896, 3d edition (1 vol.); 1900, 4th edition (1 vol.); and 1926, definitive edition (1 vol.). The last was a posthumous edition embodying revisions made by Léon Walras up to 1902. The most extensive changes were introduced into the second and fourth editions, but the modifications found in the other editions are not without importance. A translation of the definitive edition of the *Éléments* with variorum notes is in preparation by the author.

[22] Léon Walras, *Théorie critique de l'impôt précédée de souvenirs du Congrès de Lausanne* (Paris, 1861), and *De l'impôt dans le Canton de Vaud, mémoire auquel un quatrième accessit a été décerné ensuite du concours ouvert par le Conseil d'Etat du Canton de Vaud sur les questions relatives à l'impôt* (Lausanne, 1864).

into a chair in economics and devote every moment of my life to science and the communication of my ideas to young and open minds.

This day ought to have been the happiest of my life; and indeed it would have been, were it not for the cruel circumstances that becloud it, and were it not for the anguish I suffer when I view the uncertain destiny of my country and my own precarious fate. Those who have assumed responsibility in France for the national defense are, as you know, calling to the colors, as soon as they can find sufficient arms and munitions, all physically eligible men from twenty to forty—young men, bachelors, married men, and fathers. I belong to the last class; and when my turn comes, I hold myself ready to go. If we must lose all, at least let us do as our ancestors have done and preserve our honor.

Thus perhaps in a few days I may have to leave this chair which I today occupy for the first time. If such be the case, remember me with sympathy and kindness. I shall carry with me the remembrance of your cordial welcome. Meanwhile, whatever the future may have in store for us, let us settle down to work as if nothing might interrupt us, as if we were sure to remain together—you, as my first students, to remain, I hope, my lasting friends, and I with a firm resolve conscientiously to inculcate in you a knowledge and love of the principles of economics and of social ethics, which principles may guarantee the increase of wealth and the triumph of justice in a world that we now view with horror, a world today abandoned to the mercy of iniquitous and devastating ambitions.[23]

Professor Léon Walras did settle down to work immediately. His autobiography describes his first step in the development of his pure theory as follows:

I had been working steadily with the idea of creating a mathematical economics ever since 1860. . . . . The only serious attempt along these lines that was known to me was that of Cournot. I soon perceived, however, that Cournot's demand curve, which depicted the quantity demanded as a function of price, was rigorously accurate only in the case of a market confined to two commodities. Where more than two commodities are involved in the exchange process, this demand curve is merely an approximation. Restricting my attention, therefore, to the case of two commodities, I rationally derived from the demand curve of each commodity the supply curve of the other and demonstrated how current equilibrium results from the intersection of the supply and demand curves. Then I proceeded to derive the demand curve itself from the quantities possessed by each individual in the market and from each individual's utility curves for the two commodities considered. Thus I obtained the *intensity of the last want satisfied*, or the *rareté* [marginal degree of utility] as a function of the *quantity consumed*. These are the primary data from which price may be rationally deduced, and they constitute the very keystone of mathematical economics.

[23] Quoted in a letter to Bory-Hollard dated December 16, 1870.

I repeat, this was no more than the first step in the development of the Walrasian system of general equilibrium, and while it was essential, it did not constitute the whole of Léon Walras' contribution to theory, as many historians of economic thought who are incapable of following him any further are wont to repeat *ad nauseandum*. If this were all he had done, he would have been simply a co-discoverer of marginal or final degree of utility, unfortunately born too late, since Gossen, Jevons, and Carl Menger had preceded him. And, perhaps, too there would have been some slight justification on the part of the author of a recent book on the development of economics in not mentioning Léon Walras even in a footnote.[24] But the Walrasian system has vast dimensions. To give some idea of its comprehensiveness, which is so little known, it may be well briefly to summarize a few outline features of the system. Léon Walras assumes perfect competition and uniformity of prices in all parts of the market; and then he demonstrates mathematically that general equilibrium in such a market requires that the following five conditions be simultaneously satisfied: (1) Each individual, characterized by certain utility curves for each good and service in the market, must have attained maximum possible satisfaction through exchange. This condition is realized when for each individual prices are proportional to the marginal degrees of utility. (2) The supply of each commodity or service must equal the demand for it. (3) The price of each product must equal its cost of production. (4) The rate of net yield on capital investments must be equal for all capital goods, due allowance being made for differences in rates of depreciation and differences in risk. (5) The quantity of money in circulation must be such that the price of the money commodity is the same in monetary uses as it is in the arts. This last condition, which involves the theory of the demand for cash balances, is particularly important because Walras integrated his pure theory of money with the rest of his economic theory instead of allowing it to remain something apart from the whole.[25]

One day, as he reflected on his general system, he scribbled in an undated notebook which I found at Lausanne: "I am not an economist. I am an architect, but I know economics better than economists do."

Léon Walras was, of course, very proud of his first step, the rational derivation of the demand curve from utility and quantity data. He

[24] William A. Scott, *The Development of Economics* (New York, 1933). Cournot is not mentioned either, which leaves Walras in good company.

[25] In addition to a theory of the *determination* of general equilibrium, Walras presents a theory of the *emergence* of equilibrium.

thought at first that no one had had this idea before. It was quite a blow to him when he received a letter early in May, 1874, from M. d'Aulnis de Bourouill, then a student at Leyden, telling him how much he liked Walras' theory of exchange and how similar it was to a theory he had read in W. Stanley Jevons' *Theory of Political Economy*. Walras, on verifying this, immediately wrote to Jevons, conceding Jevons' priority. Walras later published some of this correspondence;[26] but in a letter dated July 29, 1874, which was not published, he said:

> I make no pretense of being above human frailty. I confess to you frankly that I was at first quite upset by the loss of my priority as the inventor of the equation which is so fundamental to the mathematical theory of exchange and of social wealth. . . . . When there is nothing else left to do but yield, one might as well do so with good grace.

The fact is, as letters written to others show, he continued to bear the same sort of grudge against Jevons as Marshall bore, until the discovery of Gossen's book by Professor Adamson in 1878 made all feeling of jealousy ridiculous. In any case, toward the end of the letter I have just quoted Walras wrote:

> I have made some points, which, I believe, will remain my own—for example, the theorem of general equilibrium and the laws of the emergence and variation of equilibrium prices. And there are many other things besides! Thus I find some consolation for my self-esteem.

Walras was always rather touchy about matters pertaining to his self-esteem. Years later, in 1889, writing to Pantaleoni,[27] he expressed his resentment at the tenor of Jevons' Preface to his second edition. He was particularly annoyed by the sentence reading: "The working out of a complete system based on these lines must be a matter of time and labour, and I know not when, if ever, I shall be able to attempt it." Walras felt that he had been slighted, for he thought Jevons should have known perfectly well when he wrote this that "the working out of a complete system" had been accomplished by Léon Walras. But this, in Walras' mind, was of a piece with other actions by English economists, for example, Marshall's device of printing his theorems "for private circulation," thus preserving his rights to priority without publishing anything, and allowing himself leisure for further research. Edgeworth's impishness—and it must be admitted he could be impish

[26] *Théorie mathématique de la richesse sociale* (1883), pp. 26–31. See also *Letters and Journal of W. Stanley Jevons*, edited by his wife (London, 1886), pp. 302–6.

[27] Letter dated August 17, 1889.

—irritated Walras more than anything else. Albion was ever perfidious —in French eyes.

The years immediately following the first appearance of his *Éléments d'économie politique pure* in 1874 were particularly rich in scientific correspondence. I pass over the exchange of letters between Walras and Cournot at this time, since Professor Antonelli has already published some of these letters in *Econometrica*. I shall, however, quote at some length a letter addressed to a German, Herr Edward Pfeiffer, on April 2, 1874, because in this letter Walras defines his position with reference to mathematical economics. After dividing economic problems into three categories—those of the pure-science variety, those of the applied-science variety, and those of the practical variety—Walras goes on to say:

> Now the application of mathematics to economics is a very different thing in the first two categories from what it is in the third. In the first category the use of the language, method, and principles of mathematics has no other object than to make our analyses more rigorously accurate and more comprehensive than ordinary logic can do. It also helps us to reach more rational conclusions. In pure theory, therefore, our formulas not only may be abstract, but should be so, in order that they may be general and permanent in their validity. Our curves and functions ought to be applicable to any commodity which may be exchanged. It is only when we are concerned with problems of the third category, i.e., of practical economics, that our formulas ought to have concrete significance and our formulas or curves ought to have numerical coefficients.
>
> This leaves to the application of mathematics the whole field of pure and applied economics. Here we can use mathematics without falling into the errors to which the historical school objects. These objections are really directed against numerical applications. This is a fact which very few understand, because few people know what mathematics really is and how it is applied in the natural sciences, for example, by a Newton to the theory of astronomical movements, and by a Fourier to the theory of heat. Most economists have no conception of the calculus and know only the four rules of arithmetic. In their eyes the application of mathematics to economics consists of an operation which necessarily resolves itself into the addition, subtraction, multiplication, and division of concrete numbers. They are mistaken. The application of mathematics to economics consists in discussing and reasoning about *utility, quantity, effective demand, effective supply, price,* etc., which are *magnitudes* . . . . , in setting these magnitudes as functions of one another and in making use of a knowledge of the general properties of these functions in a study of economic phenomena.

. . . . . .

The application of mathematics to practical economics is quite another thing. In the place of general and abstract formulas, one can, within certain limits and under given conditions, substitute special determinate formulas and obtain a price by calculation instead of waiting for the market to discover these prices. . . . . It is the business of good statisticians to tell us how, in a given country, an increase in the price of a given commodity influences the consumption of that commodity. It is incontestable that such data—true under certain conditions—will not be true when these conditions change. But is it not equally true that the statistics of births and deaths vary? And yet they do not vary so much but that such vital statistics are useful in the life insurance business. Are price data sufficiently regular to permit us to calculate approximately the effects of the demonetization of a metal or the effects of an excise tax or a protective tariff? Can they enable us to foresee and perhaps conjure economic crises? I have not studied this matter sufficiently to say. In any case, I consider it possible, up to a certain point and within certain limits, to replace empirical trial and error methods by rational practices in the administration of public and private business. Not only do I esteem with Descartes that only that which is evident can be considered as true, but I esteem further that only that can be regarded as impossible which is evidently absurd.

. . . . . .

For a long time German economics has accumulated facts derived from observation, and in doing that the Germans are right. But they fail to subject these facts to a rational theory—and in that they are wrong. We ought to fight against anti-scientific prejudice. When the Hegelian idealism, which attempted to create a physical and social universe by a priori methods, was at its height, it was appropriate for a reaction to take place in favor of experience. Today empiricism has gone too far; and the time has come for a vindication of the rights of reason and for a conciliation of the two great methods: the experimental and the rational. For my part, my most deeply felt desire is to see this beautiful scientific and philosophical synthesis accomplished and to share in this accomplishment.[28]

Walras dealt with the relation of economics to statistics also in two letters to Bortkiewicz. In the first, dated January 9, 1891, he wrote:

Now that you are teaching statistics, I trust that you will not abandon your study of economics. The two are intimately related. For example, how can one establish price statistics without a scientific knowledge of the elements of price determination and of price variation? It is impossible. For want of such knowledge, price statistics is still in a rudimentary state.

[28] The substance of this letter was later expanded and incorporated in an article entitled "Un nuovo ramo della matematica, dell'applicazione delle matematiche all'economia politica," which appeared in the *Giornale degli economisti* for April, 1876 (III, No. 1, 1–40).

In the second, dated July 30, 1899, Walras added:

Statistics is a science upon which economics can shed much light, and I hope that you will find occasion to make use of the knowledge you have acquired of the new science of economic equilibrium.

Walras was at this time carrying on a considerable amount of epistolary propaganda in favor of the application of mathematics to economics. Among the most interesting replies is that of Carl Menger. In two letters to Walras—one dated June 28, 1883, and the other, a lengthy one, dated February, 1884—Menger insisted that what the economist is after is not only the quantitative relationships (*Grössenverhältnisse*) but also the essence (*das Wesen*) of economic phenomena. "How can we," he asks, "attain to a knowledge of this essence, for example, the essence of value, the essence of land rent, the essence of entrepreneur's profit, the essence of the division of labor, the essence of bimetallism, etc., by mathematics?" In so far as mathematics was useful at all, he maintained that it was only a tool, a "*Hilfswissenschaft.*"[29] *Quis negavit?*

But Walras, for all his championship of the use of mathematics, was, by his own confession, not a mathematician properly speaking. The result was that he was attacked on both sides. He was accused of burdening his presentations with unnecessary mathematical paraphernalia incomprehensible to the layman. We find an indirect reply to this accusation in a letter Léon Walras addressed to W. Stanley Jevons, dated September 24, 1874:[30]

I have been asked on several occasions to lecture and to contribute articles on the very delicate and complex question of money. I have always replied that it was impossible for me to do so, that the theory of money which I have developed in my published course could no more be popularized than

[29] Dr. von Hayek has recently observed in *Economica* for November 1934 (N.S., No. 4, pp. 396–97), that, so far as he was aware, Menger "has nowhere commented on the value of mathematics as a tool of economic analysis." It would seem that Menger's prudent abstention from publishing what he had developed on the subject in his correspondence with Walras and also the foregoing reference to "the essence of value" as having an existence apart from "*Grössenverhältnisse*" hardly support Dr. von Hayek's surmise that "there is no reason to assume that he [Menger] lacked either the technical equipment or the inclination [to use mathematics]." Certainly, Carl Menger's brother's and son's interest in mathematics is totally irrelevant.

[30] This was written in response to a letter sent to Walras by Jevons on September 13, 1874, announcing that the latter was engaged upon a book on money "of a semi-popular character." This was Jevons' *Money and the Mechanism of Exchange*, which first appeared in 1875.

Newton's binomial theorem in algebra and that, in order to understand my "Lesson" 25 on money, it is necessary first to study the preceding twenty-four "lessons." No one is satisfied with this reply, and I continue to receive requests. If I simply had to popularize economics, I should do as popularizers of astronomy do. I should skip the proofs and say that they had been given by competent men, and simply enunciate clear and exact conclusions. But that is not what people want nowadays—they want us to present one of the most complicated of sciences as an easy science. They want us to give them the whole of celestial mechanics using only elementary arithmetic. If we do not consent to do this, we are enemies of democracy, devoid of philanthropic and humanitarian sentiments.

To those who, like Perozzo, suggested more elaborate mathematical formulations of theory, Walras replied, in a letter dated February 14, 1890:

I have been particularly impressed by one thing, and that is that economists who are mediocre mathematicians, like Jevons, have produced excellent economic theory, whereas some mathematicians who have an inadequate knowledge of economics, like Edgeworth, Auspitz and Lieben, talk a lot of nonsense (*disent beaucoup de bêtises*).

When, however, errors of a mathematical nature were pointed out to him by Bortkiewicz and D'Ocagne, the latter a mathematician and engineer, he adopted a truly humble attitude. Though Bortkiewicz was only a young student in 1888, Walras wrote to him in a letter dated May 19, 1888:

As I am not a professional mathematician and have no one near me, like yourself, who is a mathematician and who will take pains to examine my theories, I must resign myself to discovering in my work, in all probability, other errors of the kind to which you have just called my attention.

To D'Ocagne he replied, in a letter dated May 10, 1891:

I learned the calculus all by myself, and I probably made a poor choice among the methods by which one acquires a good foundation in the subject. Moreover, I consider my work both from the economic and the mathematical points of view simply an incomplete sketch. I hope that in the near future it will be superseded by other work more complete and better done.

Walras soon woke up to the futility of methodological controversies, and after a while refused to be drawn into them. His correspondence attains a higher order of interest when he endeavors to dispel obscurities that baffled his readers or when he defines certain irreconcilable differences with his contemporaries. It would exceed the scope of this paper and it would require very lengthy mathematical developments to

present these important matters with any fulness. I shall confine myself, therefore, to brief indications of some of the major issues in pure theory raised in these letters. I must perforce leave aside also any consideration of Walras' voluminous correspondence dealing with monetary questions.

The exchange of letters between Walras and Alfred Marshall in the early eighties contains no capital points of theory. It is curious to note, however, the manner in which Marshall insists that he had lectured on what he originally called the "terminal-value-in-use" before Jevons' *Theory of Political Economy* was published.[31] Marshall claimed also that he had anticipated Walras' doctrine of unstable equilibrium.[32]

The correspondence with Wicksteed is much more illuminating, for it deals, in part, with the delicate problem of the empirical groping of the market toward equilibrium. Wicksteed pointed out,[33] and Walras admitted,[34] that when the price of any one commodity rises or falls, thus bringing the supply and demand for that commodity nearer to equilibrium, the effects of this change on other prices and the subsequent repercussions on the price of the principal commodity in question need not necessarily result in a closer approach to equality between demand and supply than existed at the start. It becomes a matter of greater or lesser probability.

This is, of course, not the same thing as, but is definitely related to, another difficulty which Edgeworth raised, not in his correspondence, but in his published work, namely, that Walras' description of the process by which prices emerge in the market is the description of *a* path, not of *the* path, to equilibrium.[35] In his correspondence Edgeworth argued another point. He was and remained, even after repeated explanations by Walras, mystified by the Walrasian theorem of maximum

[31] ". . . . I cannot be said to have accepted the Jevons doctrine of 'final utility.' For I had taught it publicly in lectures at Cambridge before his book appeared. I had indeed used another name, viz.: 'terminal-value-in-use.' But, following the lead of Cournot, I had anticipated all the central points of Jevons' book and had in many respects gone beyond him. I was in no hurry to publish, because I wished to work out my doctrines on their practical side. Latterly I have been hindered by illness. . . . ." (letter dated November 1, 1883, from Alfred Marshall to Léon Walras). It may be noted at this point that Jevons never used the term "final utility," only "final degree of utility."

[32] *Ibid.*

[33] Letter from Philip H. Wicksteed to Léon Walras, dated December 1, 1884.

[34] Letter to Wicksteed, dated December 14, 1884.

[35] F. Y. Edgeworth, *Papers Relating to Political Economy* (London, 1925), II, pp. 311–12.

satisfaction as it related to capital goods.[36] Nor has any satisfactory solution yet been found for the problem of the imputation of marginal degrees of utility to fixed capital goods whose services yield no direct utility. Walras evolved a theory of imputation which was ingenious enough but which was based on the assumption that the services of new capital goods are proportional to the quantity of these goods and that consequently the same quantity symbol may be used for both.[37] Edgeworth could not swallow this assumption, because of the existence of old durable capital goods whose services are not consistently proportional to the quantity of these goods.[38]

Another interesting point raised in the correspondence of this period is Walras' controversy with Böhm-Bawerk concerning the theory of interest. As a matter of fact, Walras shifted his position on interest when he came to prepare the fourth edition of his *Éléments* between 1896 and 1900. In the first three editions his equation of demand for savings is simply given as an empirical datum; but he adds that this equation could, if necessary, have been derived from the difference be-

[36] Letters from Walras to Edgeworth dated March 22, April 4, April 15, May 3, May 9, 1889, and from Edgeworth to Walras dated March 19, March 29, April 12, and May 9 of the same year.

[37] "Lesson" 26 of the *Éléments* (definitive edition).

[38] "As I had anticipated, the import of the new theory is to apply statements which had been already proved for one sort of market—that of services and products—to another sort of market, that of capital: in your sense of that term, a sense which had not escaped so diligent a student of your book as I am. To use the old metaphor of the goose with the golden eggs—you before showed that in the egg market, price is determined by '*rareté*,' and that maximum utility (in a certain sense which you have carefully defined) is realized. You now prove the same propositions for the goose market. Sometimes as I understand, you make abstraction of the *food* required by the goose in order to keep her in (good [? illegible]) condition; and sometimes you make allowances for her support and risk of her flying away, when you use your π's instead of your ρ's. Your use of both sets of coefficients on p. 305 [of ed. 2] has a little puzzled me.

"The only other difficulty which I continue to feel in the exposition which you give in the added chapter is at the third page where you speak of certain increments being *at the same time* of the nature of capital and 'services'; for so I interpret your statement and the correlated symbolism. Your system of differentials involves a relation between the goose market and the egg market which I have failed to grasp. Take a simple extreme case of a quite indestructible capital such as I had in view when instancing silver plate. The amount of *service*, i.e., use of plate (supposing, as happens, that plate may be lent to grace an entertainment) demanded by a person, and the amount of plate or a *possession* forever demanded by the same person are not to be bracketed as the formula suggests" (letter from Edgeworth to Walras dated April 12, 1889).

tween present utility and future utility. In the fourth edition this passage was suppressed.[39] Walras imagines, instead, a new commodity which he calls perpetual net income, the price of which is the reciprocal of the rate of interest. Thus he deduces the rate of interest from the price of rights to perpetual net income, and this price is determined like all other prices in his total equilibrium scheme. The symmetry of his original system remains intact. He avoids, furthermore, injecting a new element, time preference. Not that he denies the existence of time preference. In a letter to Böhm-Bawerk dated May 5, 1889, he writes:

> You deduce the rate of interest from the difference in value between present and future goods. For my part, I think that the difference in value between present and future goods cannot be directly determined, for this difference can only be deduced from the rate of interest which is determined directly by the ratio of the total net yield from new capitals to the volume of savings.

The delay in introducing this change and other changes, which his correspondence shows he had worked out earlier, into his successive editions is symptomatic of the increasing difficulties under which he was laboring. Personal tragedies began to beset him from the time of the publication of his first edition. His daughter wrote to me recently apropos of a photograph of Walras dated 1878:

> This photograph always brings to my mind sad memories. My poor mother was very ill at that time. Her illness lasted three years, and her death in 1879 was for her a merciful release. The expense was so great that my father's annual salary of 4,000 francs could not cover it. He gave an extra course at Neuchâtel; he gave private lessons and even wrote literary columns over the pseudonym Paul which were published every fortnight in the *Gazette de Lausanne*.

Léon Walras' nervous system broke down under the strain. Time and again we read in his letters of the eighties and nineties, "J'ai la tête très fatiguée." Curiously enough, he was suffering from the same sort of malady with which Jevons had been afflicted. In 1892, he took a year's leave of absence in the hope of recovering sufficient strength to carry on his teaching with his accustomed conscientiousness. But he soon saw that it was hopeless and resigned definitively.

1892–1910

Walras' retirement from his teaching post was by no means a retirement from scientific activity. As is well known, many of his publica-

[39] Compare pages 270–71 of the third edition of the *Éléments* with page 250 of the fourth edition or the definitive edition.

tions and important revisions of the *Éléments* belong to this period. What is less well known is the extent of his correspondence in the nineties. His rich scientific correspondence with his successor Pareto, with Enrico Barone, and with Irving Fisher, belongs to this period. In the last decade of his life he wrote touching letters to Henry Ludwell Moore, whom he looked upon as a spiritual child to whom he might well intrust the task of carrying on his work. In this his hope was not in vain. In general he found great satisfaction in the recognition he received in America. Walras always took great pride in the fact that the American Economic Association had elected him an honorary member in 1892. Though, in the last decade of his life, honors were heaped upon him in Switzerland and abroad, and he had the consolation of seeing his theories gaining a firm foothold in Switzerland, Italy, Holland, Belgium, and the United States, he was bitterly disappointed by the coldness and hostility with which they were received in his own country, France.[40]

I can here do no more than briefly indicate one or two of the principal scientific questions discussed in the letters of the last period of Walras' life. Walras always showed himself highly appreciative of Irving Fisher's criticisms published in 1892 as an introductory note to his translation of Walras' *Geometrical Theory of the Determination of Prices*.[41] Walras maintained, however, that there was no foundation to Fisher's charge that he had neglected the element of time in his price analysis and had failed to consider production as a flow. His answer to this charge was first written on a manuscript note I found among his papers, and then printed, without mentioning Professor Fisher, on page 336 of the *Économie politique appliquée*. This note insists that it was only in the statical development of his theory that the time element and the flow concept do not appear. In the dynamical development, presented in "Lesson" 20 of the *Éléments*, the productive process is studied in motion and products are considered as flowing at a definite rate through time. Walras, however, admitted that Fisher was right in saying that he had omitted to discuss the utility of any good as a function of the quantities of other goods and that he had left out of account the "permanent" profits of enterprise, i.e., the profits resulting from the fact that only marginal cost price equals selling price at equilibrium.[42] But

[40] There were no Walras centennial meetings in France in the year 1934.

[41] *Annals of the American Academy of Political and Social Science*, III (1892), 45–64.

[42] Letter to Irving Fisher, dated July 28, 1892.

Walras added that he had not overlooked these matters in his own notes and had later purposely left them out of his *Éléments* for the sake of simplicity. It was, according to Walras, a task for future generations of economists to rectify and add certain details to his system. He had fulfilled the task of giving to the world his system as a whole in the simplest form.

In 1902, when Walras brought to his printer the last revisions for the definitive edition of his *Éléments*, he was sixty-eight years old, weary with toil, and surfeited with controversies.[43] At times he would write to his intimate friends that he hoped he had sufficient philosophical self-restraint to give up his work in economics soon and to spend the rest of his days fishing and pottering about with painting and numismatics. But he could not really stop. His last writings were an article called "Économique et mécanique," published in 1909,[44] and a newspaper article entitled "Doctrines économiques," which appeared in the *Gazette de Lausanne* the day after he died. Professor Rist tells the story

[43] As early as 1891, in a letter dated February 27, Walras had written to Bortkiewicz: "I have no more strength left, and the time has come for me to cede my place to others. But I shall wait, if necessary, until I find men who know that the secret of science is to keep the general case to the fore and to relegate particular cases and exceptions to the background. Fundamentally, that is the crux of my quarrel with Edgeworth. Take the question of the emergence of equilibrium through the groping of the market. I consider the quasi-universal case of free competition in exchange, the one that John Stuart Mill describes, which consists in raising prices when demand exceeds supply and in lowering prices when supply exceeds demand; and I demonstrate that this process results in equilibrium when supply and demand are equal. Upon which, my critics hurl at my head the English public security market, the English labor market, the English auction, the Dutch auction, etc., etc. When I treat the question of personal services [labor], my formulas include first the case of *unskilled labor*, which is characteristic of the labor of those who have never been apprenticed, then the case of *skilled labor*, which is characteristic of the labor of those who have served their apprenticeship, and finally the case of labor characterized by the individual workman's personal qualities. All this is nothing. The case which ought to have first consideration is the case of an individual who has served two or three apprenticeships and who passes two or three times a day from one kind of work to another [cf. Edgeworth's *Papers*, II, 318–19], just as, for Auspitz and Lieben, the essential case is that of two commodities which complement each other. Well, these gentlemen would do better to work out these cases (which are not difficult, once the method has been found) instead of arguing about them in an attempt to prove that the general case 'does not belong to the sphere of science.' I do not claim to have created a finished science of pure economics by myself; all I claim is that I have sketched its broad outlines. . . ."

[44] *Bulletin de la Société Vaudoise des Sciences Naturelles*, XLV, No. 166 (April, 1909), 1–15.

that during the last years of Walras' life a delegation of foreign economists came to Clarens, a small town near Lausanne to which Walras had retired in 1901, to pay their respects to the master. They had to inquire their way to his modest flat. A townsman, who had not at first caught the name, replied: "Ah, you mean the old professor who is continually reading his own books and looking for his mistakes." He remained a scholar and a scientist to the end. He died on January 5, 1910, only six months after the University of Lausanne had celebrated the jubilee of his service to economics.

In the nature of things, no autobiography has ever been finished. And yet, among Walras' notes I found these words, scribbled in pencil on a piece of blue paper with a parenthetical notation "end of autobiography":

> The only immortality left for us to hope for is that of our own work. We must labor and enjoy the success of our labor by anticipation. This is the secret of morality and the secret of happiness.

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FACTORS DETERMINING THE ECONOMIC DEVELOPMENT OF A MICHIGAN "COUNTRY TOWN"

THE economic significance of the "country town" as an institution peculiar to the development of this country is a commonplace to students of American economic history. Yet relatively few attempts have been made to point out specific factors which tend to further or hinder economic development in such places. It seems justifiable, therefore, to point out some of these causes of growth and to show their relationship to more general economic forces.

The material presented here is drawn largely from a study of the economic history of Alma, a small town of 6,700 inhabitants located in the central part of Michigan's Southern Peninsula. But much that is said concerning it will apply to other towns in the Middle West, and, with some modifications, to similar places located in other parts of the country.

A brief historical review of the development of this town will help to clarify the discussion of factors which have determined economic development. The first settlement on land now occupied by Alma took place in 1853.[1] Settlers entered this area rapidly during the succeeding years and two rival towns were founded —St. Louis, located three and a half miles northwest of Alma, in 1854, and Ithaca, nine miles to the south, in 1855. Table I summarizes population changes for these three towns and for Gratiot County.

The economic history of Alma can be divided into four rather distinct periods. The earliest of these covers the years from 1853 to 1880—a time during which extractive industries dominated the economic life of the town. Agriculture and lumbering were the chief industries. A railroad connection was secured in the middle

[1] Accounts of this first settlement have appeared in the *Michigan Pioneer and Historical Collections*, II, 264–72; in the *Gratiot County Album* (Chicago: Chapman Brothers, 1884); and in various newspapers.

seventies[2] and this accelerated growth. However, this road was of greater benefit to St. Louis than to Alma.

The second period was marked by gradual expansion of agriculture, the decline of lumbering, the development of commercial activities, and some growth of small-scale manufacturing. In the early eighties, A. W. Wright, millionaire lumberman, merchant, and banker, settled in Alma, and he dominated many of the local economic developments during the succeeding three decades.[3] In

TABLE I

POPULATION CHANGES, 1860–1934*

Year	Alma	St. Louis	Ithaca	Gratiot County
1860	70†	(100)	(50)	4,062
1870	404	888	(300)	11,813
1880	467	1,975	601	21,936
1890	1,665	2,246	1,627	28,668
1900	2,047	1,987	2,020	29,881
1910	2,757	2,342	1,970	28,620
1920	7,542	3,036	1,929	33,914
1930	6,734	2,494	1,780	30,252
1934‡	6,000	2,800	1,800	30,000

* These figures are taken from United States Census Reports, except those given in parentheses, and those for 1934, which are estimates made by local people.

† F. J. Soule, *An American Village Community* (New York: Columbia University Press, 1909), p. 9.

‡ Figures for 1934 are estimates made by the writer with the assistance of various local people.

1885 and 1886 he was largely responsible for inducing the Ann Arbor Railroad to direct its route northward so as to include Alma, and in 1897 he was instrumental in having St. Louis eliminated from the Ann Arbor line.[4] Thereafter Alma was the railroad center of the county.

The first two decades of the twentieth century were marked by rapid advance. Agriculture was prosperous and trade expanded. The greatest contribution to growth, however, was made by manufacturing activity—especially after 1913, when the Republic Truck Company was started.[5] This company grew rapidly dur-

[2] P. W. Ivey, *The Pere Marquette Railroad* (Lansing: Michigan Historical Commission, 1919), pp. 253–54.

[3] W. D. Tucker, *Gratiot County History* (Saginaw: Seemann and Peters, 1913), pp. 31–35.

[4] *Ibid.*, p. 1232.

[5] *Gratiot County Register of Deeds.*

ing the war years, but its decline after 1920 was the principal reason for depressed conditions in Alma from about that date forward.

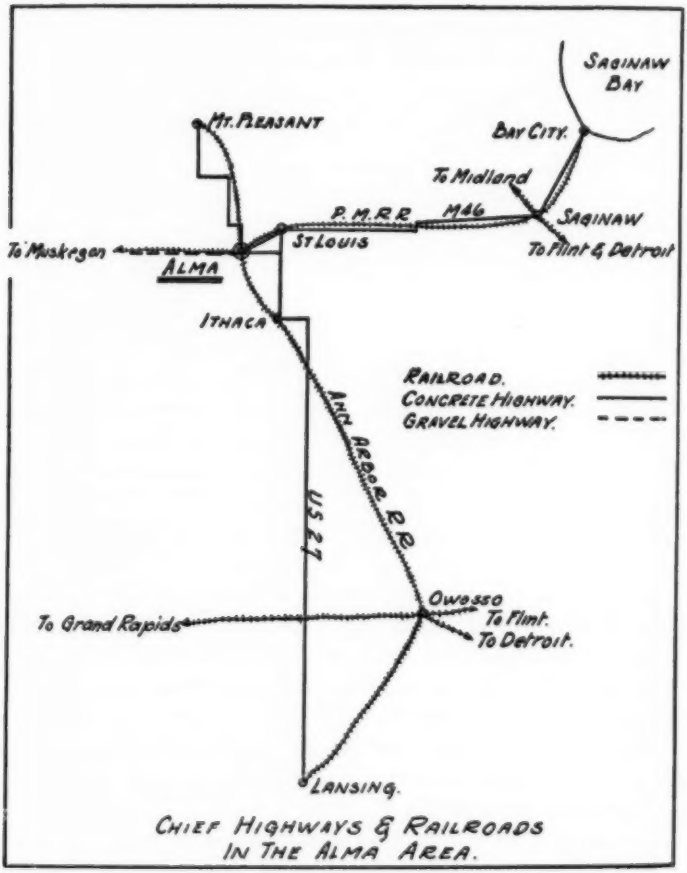

Fig. 1

These latter years comprise the fourth main division in Alma's economic history—a period of retrogression. Agriculture was far from prosperous after the war, trade declined, several local plants

failed, and the Republic was unable to regain lost ground in spite of a reorganization in 1923. By 1930 its operations had almost ceased, and in 1932 it was sold to the Sterling Manufacturing Company of Milwaukee. Between 1926 and 1930 there seemed to be some hope for the revival of local manufacturing and several new establishments were set up. But the depression years since 1929 added to the economic difficulties which had been growing during the twenties.

Probably the most fundamental influence in shaping the growth of towns like Alma is natural resources. During the Colonial period of American history it was the abundance of natural resources which largely determined the type and extent of economic activity which took place. The only marked advantage which the new communities possessed in the production of wealth was their rich natural resources, and it was this condition which gave their products a competitive advantage in world-markets. Of course, the natural resources would have had no economic significance had it not been possible to market the products. But the markets were available and the abundance of natural resources formed the foundation of the colonists' prosperity. As time went on this situation was greatly modified.[6]

The new settlements in the interior of the United States corresponded in many respects to the original colonies on the Atlantic seaboard. The most important basis of their income was an abundance of natural resources—agricultural land, timber, or mines being the most prominent. But their markets centered in older settlements rather than in foreign commerce—hence a national economy began to develop—largely because of the specialization of economic activity which was dictated in part by the abundance of natural resources in newer areas. Such specialization would have been impossible without the growth of an efficient transport system, which connected the new settlements with the old. Given the transportation, however, the resulting specialization developed at a rapid rate.

It was the settlement of the West which brought the vast

[6] The writer is indebted to G. S. Callender for this analysis. See his *Readings in the Economic History of the U.S.* (New York: Ginn and Co., 1909).

wealth of natural resources in the interior of the United States into use. Prior to 1850 the main line of the westward movement almost entirely missed the interior of Michigan's Southern Peninsula.[7] Situated as it is between the shores of Lake Huron and Lake Michigan, the area formed a sort of inlet or eddy—beside, rather than in, the main stream of migration. Hence, it was not until the middle fifties that settlers entered this area. Natural resources alone accounted for the original settlements. The rich lumber resources of the Saginaw Valley had brought lumbermen into the territory at an early date, and by the late fifties their operations reached the vicinity of Alma.[8] Farmers, however, were to make up the majority of the population in this area, and they came in rapidly after 1855. By 1890 Gratiot County, within which Alma is located, had a population of nearly 29,000—almost as many as at the present time.[9] It was the natural resources of the area, notably agricultural land, which formed the basis of this population's economic progress, and these continued to be a prime factor in explaining the town's development.

Certain other natural resources, such as furs and other products of the wild life of the forest, were of importance during the early years of settlement, but their significance declined after the first few decades.[10] Lumber resources had a bearing on the economic advance of Alma during the years before 1900, but were of practically no significance thereafter.[11] The forest area of Michigan lay to the north of Alma for the most part, and influenced the growth of the town only incidentally.

Not only do natural resources explain original settlement and much of the economic advance of this town, but their influence is even greater than this. For as areas farther to the west were brought under cultivation and connected by rail and other transport agencies with markets, they in turn influenced the produc-

[7] E. L. Bogart, *Economic History of the American People* (New York: Longmans, 1932), pp. 426–28.

[8] James C. Mills, *History of Saginaw County* (Saginaw: Seemann and Peters, 1919), p. 403.

[9] United States Census, 1890, *Population*.

[10] W. D. Tucker, *op. cit.*, pp. 40–50.

[11] James C. Mills, *op. cit.*, pp. 402–10.

tion activities of the Alma area. Hence, grain farming, notably the growing of wheat, declined, and specialization in such crops as sugar beets and beans and the raising of livestock, especially cattle, sheep, and swine, became the main lines of agricultural activity,[12] largely because of the competition of the new sections of the country. Other influences also played their parts in determining the types of crops which should be produced, but one of the most important factors in explaining this development was the growth of settlements in the area west of the Mississippi.

Natural resources in the vicinity of Alma also accounted for a number of the manufacturing activities which developed. During the earlier years, the lumber resources nearby resulted in the establishment and operation of several sawmills, a planing mill and shingle factory, and a furniture factory.[13] A grist- and flourmill was among the first enterprises to be set up, because wheat and corn could be secured in the locality. A woolen mill also developed at an early date for similar reasons.[14] Although these enterprises were of limited size, they played their part in the economic advance of the town.

Much of the later manufacturing development was due to the fact that raw materials could be secured from farms in the immediate vicinity—a sugar factory,[15] a produce plant,[16] and a pickle and vegetable canning factory[17] all grew up because such agricultural products could be secured locally. And it should be noted that, with a few exceptions, the only manufacturing enterprises which achieved lasting success were those which relied on the products of the immediate area.

Natural resources require a certain amount of labor and capital before production can be carried on—no one of the factors of production can be used alone. Hence, the available labor and capital supplies must be considered as influences which helped to

[12] United States Census, 1860–1930, *Agriculture*.

[13] W. D. Tucker, *op. cit.*, p. 605; also conferences with Mr. W. A. Bahlke and Mr. William Rogers.

[14] *Gratiot County Album*, pp. 696–701.

[15] *Gratiot County Incorporation Records*, II, 126.

[16] *Alma Record*, February 20, 1903. [17] Conference with Mr. Peter Rinck.

shape the growth of Alma. But there is nothing especially distinctive about the labor supply in Alma—or in most towns and small cities. In comparison with European countries the American labor supply has always been limited, both in terms of quantity of labor and the degree of skill available. It is true that the rapidity with which labor-saving devices were adopted by farmers in the Alma area can be explained in part by the difficulty of securing laborers, but this was not distinctive of agriculture in this locality alone. And apparently labor could be obtained whenever the economic opportunities for its employment were present, for the number of laborers in Alma was rapidly increased between 1915 and 1920 during the prosperous period of the Republic Truck Company. It may be that the degree of skill possessed by the workers in Alma was more limited than in larger centers—but otherwise there is little to set this off as a factor explaining either growth or the lack of it.

The influence of capital, however, is more marked. A supply of capital can be secured either by saving or by bringing it in from elsewhere. To the extent that the latter alternative is possible, growth may proceed at a much greater rate than if the capital supply must be the product of a slow accumulation process. In general there are certain hindrances to the free flow of capital to smaller cities: their banking facilities are less adequate than those in larger places, the enterprises carried on are not large enough or sufficiently widely known to attract investment, and the corporate form of organization is not used to a great extent (or, if used, the concerns are too small for their securities to command attention in the larger capital markets). It was not until 1919 that any local business organization was able to finance itself in this way.[18] In that year the Republic Truck Company floated a three-million dollar bond issue which was sold in New York. And during the twenties the city sold a number of its bonds to bankers and trust companies in Detroit.

On the other hand, some particular individual with fairly large amounts of capital at his command may be much more influential in determining the course of development in a small community

[18] Audited reports of the Republic Truck Company.

than if he is located in a larger place. Such was the case of Mr. A. W. Wright in Alma.[19] His capital and entrepreneurial ability were vital factors in explaining the economic development of this small city. The lack of significant amounts of capital is one reason for the relatively slow growth of the Alma area during the earlier years. Because settlers who had neither sufficient equipment nor the means with which to purchase it had hurried into the woods in order to take up land, the development of agriculture was a slow process until the required tools and machinery could be secured. Farmers commanded no credit in other places except to the extent that they had friends or relatives who were willing to finance them. Hence, a capital supply had to be accumulated gradually, by the saving process for the most part. Lack of markets due to inadequate transportation facilities prior to the coming of the railroads accentuated this problem. And, since the business men of the town relied upon the trade of farmers in the surrounding area, there was little chance for growth along commercial lines so long as agriculture remained in a backward condition.

Consequently, when Mr. Wright settled in Alma in the early eighties and began to take an active part in promoting the development of the town by making his capital available to local enterprises, the rate of growth was rapidly increased. He furnished funds for a number of Alma establishments which otherwise might not have been set up, and took an active part in promoting local business generally. His capital was of the greatest importance in determining the character of the railroad system in the Alma area,[20] for when he engineered the rerouting of the Ann Arbor in the late nineties Alma became the railroad center of the county, and as a result business houses there were able to forge ahead of their rivals in neighboring Ithaca and St. Louis with great rapidity.

Mr. Wright's funds made possible the beginning and growth of the Alma Roller Mills,[21] the Central Michigan Produce Com-

[19] W. D. Tucker, *op. cit.*, pp. 30–35; 636–40. See also T. G. Gardiner and John Moore, "Ammi W. Wright," *Magazine of Western History*, Vol. V, No. 1.

[20] See p. 209, *supra*.

[21] W. D. Tucker, *op. cit.*, p. 672.

pany,[22] the Alma Mercantile Company,[23] the sugar factory, the Alma Sanitarium,[24] and the college.[25] He was also a stockholder in the First State Bank[26]—in fact, it was his capital and the confidence which local people had in him which helped to make this bank a sound financial institution. He also built about twenty miles of road in this locality, and his interest in agriculture prompted him to point out more efficient methods of production to local farmers.[27] The very important part which he played in determining the course of economic development in Alma is typical of the rôle which similar persons have played in numerous small cities. The common phrase "a one-man town" is altogether too well known and has been applied to too many situations to be passed over lightly.

Another significant factor in explaining the economic advance of Alma was the development of an adequate transportation system. Reference has already been made to the importance of transport agencies in connection with natural resources and to the influence which Mr. Wright was able to exert through a change in railroad lines. It was the railroad which broke down the old self-sufficiency and made specialization and production for the market possible—conditions which were necessary before the farm incomes of this area could grow substantially. Although nature had provided something of a transportation system in the rivers and streams which could be navigated by small boats,[28] neither these waterways nor the crude roads through the forests were sufficient to allow specialization in the Alma area. As the rail facilities were extended the possibilities of specialization and production for the market were increased. And since Alma secured north-south as

[22] Now the Swift and Company Produce Plant.

[23] *Gratiot County Incorporation Records*, II, 66.

[24] *Alma Record*, September 10, 1886.

[25] A. F. Bruske, "History of Alma College" (unpublished MS, Alma College Library, 1892). Also, conference with H. M. Crooks.

[26] Conference with Mr. Carl Washburn, cashier, First State Bank.

[27] Conferences with Mr. W. A. Bahlke, Mr. William Rogers, Mr. Charles Murphy.

[28] G. N. Fuller, *Economic and Social Beginnings of Michigan* (Lansing: Michigan Historical Commission, 1916), pp. 19–27.

well as east-west rail connections, the town's ability to serve the surrounding agricultural community as a marketing and distributing point were definitely increased.

Railroad development has been a significant factor in determining the growth of a number of small cities—sometimes it alone explains settlement and growth—or the lack of adequate rail facilities may spell disaster to a community, the history of the neighboring town of St. Louis being a case in point.

Yet, the railroads put Alma merchants into more definite competition with other markets and took away the quasi-monopolistic position which they enjoyed for a time. But the benefits far outweighed this loss. Highway development was more important in this connection. Although better roads increased the area over which Alma merchants could sell their goods and made it easier for farmers to bring their produce to Alma markets, they also took business away from local merchants to establishments located in larger cities. This was especially true of the concrete road system which developed during the twenties.[29] In some respects the development of such roads wiped out the strategic position which Alma's rail connections had secured for her, and the relative gains from the modern road system were not as marked as they were for other nearby small cities and towns.

Certain governmental policies have been influential in determining the economic growth of Alma. The Graduation Act helped to account for the rapidity with which population moved into this area in the fifties and sixties.[30] The Erie Canal speeded up the rate of settlement in this locality, and the financial assistance which governmental units gave to the railroads hastened settlement and economic progress. Highway development was almost entirely the product of governmental activity, and its influence has already been suggested. The regulation of banking helped to

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increase the soundness of local financial institutions, and governmental provisions for financing agricultural loans were factors of some importance in explaining development of one kind or another. Such policies, however, were not especially distinctive in their influence on the development of this locality. The tariff policy of the country was of special significance for the Alma area because it provided protection to sugar and hence gave a bounty to sugar-beet growers.[31] The World War, by stimulating a great demand for motor trucks, provided a large market for the Republic Truck Company, without which a large portion of its expansion would have been impossible. Conversely, it was the cessation of these war-time demands which largely explain the decline of this company.[32] It should be noted that the Republic Truck Company was the most important single industry ever to develop in Alma and was responsible for much of the advance which occurred between 1915 and 1920. However, this rapid expansion created a number of problems for the present-day citizens.

In many ways the general development of the entire country reacted on the economic advance of Alma—not in a fashion, however, that was distinctive for this locality alone. Nevertheless, a few of the most important influences of general growth should be noted. Some of these have already been mentioned: the influence of agricultural development in newer areas resulted in a change in the type of crops and amount of specialization in farming in the Alma area,[33] also the reactions from certain governmental policies have been noted in the preceding paragraph. Several other results of a general advance should be mentioned also.

The rapid increase in population, plus the tendency toward urbanization, resulted in a larger market for farm products and led to a more prosperous agriculture. The importance of this is easily seen if the fact that the major source of Alma's income was derived from trade with farmers is borne in mind. Shifts in cen-

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ters of certain types of production had an effect. The exhaustion of the timber supply in Michigan and the rise of the lumber industry in the South and West were especially significant for local development.[34] Advances in technology brought greater efficiency in the various production processes carried on. The general tendency toward a greater amount of specialization in economic activity influenced people in Alma chiefly, however, as it affected agriculture. Furthermore, the general rise and fall of business activity—prosperity and depression—had important local effects. It is probably true that such swings of the business cycle were not as marked here as in more highly urbanized places, but they still exercised a profound influence.

Two non-profit-seeking institutions were also of importance in determining expansion here. Alma College,[35] started by the Presbyterian Church and endowed originally by Mr. Wright, brought a number of people to the city and increased the size of the local market. The same was true of the Alma Sanitarium, which later became the Michigan Masonic Home. These institutions gave Alma an advantage over neighboring rivals and were special factors in helping to explain economic advance.

Certain factors which deterred development should be mentioned also. The quality of managerial ability in Alma was not of the highest[36]—a condition which is evidently typical of many similar places. This did not make a great deal of difference during the early years, when no large amount of managerial ability was required, due to the fact that competition was limited almost entirely to the local market (and as time went on the demands made upon management were not as great in Alma as in larger centers); yet deficiency in managerial ability accounted for the failure of a number of business establishments and for the dissipation of significant amounts of capital.[37] Apparently those who possessed

[34] J. E. Defebaugh, *History of the Lumber Industry of America* (Chicago: The American Lumberman, 1906), I, 36 ff.

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shape the growth of Alma. But there is nothing especially distinctive about the labor supply in Alma—or in most towns and small cities. In comparison with European countries the American labor supply has always been limited, both in terms of quantity of labor and the degree of skill available. It is true that the rapidity with which labor-saving devices were adopted by farmers in the Alma area can be explained in part by the difficulty of securing laborers, but this was not distinctive of agriculture in this locality alone. And apparently labor could be obtained whenever the economic opportunities for its employment were present, for the number of laborers in Alma was rapidly increased between 1915 and 1920 during the prosperous period of the Republic Truck Company. It may be that the degree of skill possessed by the workers in Alma was more limited than in larger centers—but otherwise there is little to set this off as a factor explaining either growth or the lack of it.

The influence of capital, however, is more marked. A supply of capital can be secured either by saving or by bringing it in from elsewhere. To the extent that the latter alternative is possible, growth may proceed at a much greater rate than if the capital supply must be the product of a slow accumulation process. In general there are certain hindrances to the free flow of capital to smaller cities: their banking facilities are less adequate than those in larger places, the enterprises carried on are not large enough or sufficiently widely known to attract investment, and the corporate form of organization is not used to a great extent (or, if used, the concerns are too small for their securities to command attention in the larger capital markets). It was not until 1919 that any local business organization was able to finance itself in this way.[18] In that year the Republic Truck Company floated a three-million dollar bond issue which was sold in New York. And during the twenties the city sold a number of its bonds to bankers and trust companies in Detroit.

On the other hand, some particular individual with fairly large amounts of capital at his command may be much more influential in determining the course of development in a small community

[18] Audited reports of the Republic Truck Company.

than if he is located in a larger place. Such was the case of Mr. A. W. Wright in Alma.[19] His capital and entrepreneurial ability were vital factors in explaining the economic development of this small city. The lack of significant amounts of capital is one reason for the relatively slow growth of the Alma area during the earlier years. Because settlers who had neither sufficient equipment nor the means with which to purchase it had hurried into the woods in order to take up land, the development of agriculture was a slow process until the required tools and machinery could be secured. Farmers commanded no credit in other places except to the extent that they had friends or relatives who were willing to finance them. Hence, a capital supply had to be accumulated gradually, by the saving process for the most part. Lack of markets due to inadequate transportation facilities prior to the coming of the railroads accentuated this problem. And, since the business men of the town relied upon the trade of farmers in the surrounding area, there was little chance for growth along commercial lines so long as agriculture remained in a backward condition.

Consequently, when Mr. Wright settled in Alma in the early eighties and began to take an active part in promoting the development of the town by making his capital available to local enterprises, the rate of growth was rapidly increased. He furnished funds for a number of Alma establishments which otherwise might not have been set up, and took an active part in promoting local business generally. His capital was of the greatest importance in determining the character of the railroad system in the Alma area,[20] for when he engineered the rerouting of the Ann Arbor in the late nineties Alma became the railroad center of the county, and as a result business houses there were able to forge ahead of their rivals in neighboring Ithaca and St. Louis with great rapidity.

Mr. Wright's funds made possible the beginning and growth of the Alma Roller Mills,[21] the Central Michigan Produce Com-

[19] W. D. Tucker, *op. cit.*, pp. 30–35; 636–40. See also T. G. Gardiner and John Moore, "Ammi W. Wright," *Magazine of Western History*, Vol. V, No. 1.

[20] See p. 209, *supra*.

[21] W. D. Tucker, *op. cit.*, p. 672.

pany,[22] the Alma Mercantile Company,[23] the sugar factory, the Alma Sanitarium,[24] and the college.[25] He was also a stockholder in the First State Bank[26]—in fact, it was his capital and the confidence which local people had in him which helped to make this bank a sound financial institution. He also built about twenty miles of road in this locality, and his interest in agriculture prompted him to point out more efficient methods of production to local farmers.[27] The very important part which he played in determining the course of economic development in Alma is typical of the rôle which similar persons have played in numerous small cities. The common phrase "a one-man town" is altogether too well known and has been applied to too many situations to be passed over lightly.

Another significant factor in explaining the economic advance of Alma was the development of an adequate transportation system. Reference has already been made to the importance of transport agencies in connection with natural resources and to the influence which Mr. Wright was able to exert through a change in railroad lines. It was the railroad which broke down the old self-sufficiency and made specialization and production for the market possible—conditions which were necessary before the farm incomes of this area could grow substantially. Although nature had provided something of a transportation system in the rivers and streams which could be navigated by small boats,[28] neither these waterways nor the crude roads through the forests were sufficient to allow specialization in the Alma area. As the rail facilities were extended the possibilities of specialization and production for the market were increased. And since Alma secured north-south as

[22] Now the Swift and Company Produce Plant.

[23] *Gratiot County Incorporation Records*, II, 66.

[24] *Alma Record*, September 10, 1886.

[25] A. F. Bruske, "History of Alma College" (unpublished MS, Alma College Library, 1892). Also, conference with H. M. Crooks.

[26] Conference with Mr. Carl Washburn, cashier, First State Bank.

[27] Conferences with Mr. W. A. Bahlke, Mr. William Rogers, Mr. Charles Murphy.

[28] G. N. Fuller, *Economic and Social Beginnings of Michigan* (Lansing: Michigan Historical Commission, 1916), pp. 19–27.

well as east-west rail connections, the town's ability to serve the surrounding agricultural community as a marketing and distributing point were definitely increased.

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special gifts along this line went to larger cities, where there were greater possibilities of "cashing in" on their talents. Furthermore, there were few local enterprises of sufficient size to draw high-salaried managers from other places.

Climatic conditions have not been as favorable in Alma as in other parts of the Middle West[38]—the growing season is likely to be shortened by late frosts in the spring and early ones in the fall. Much of the farm land requires drainage—a fact which increases the investment necessary for efficient production—and the soil is not as rich as in many other parts of the state or in neighboring areas of the Middle West.[39]

A fact of some importance, also, was the failure of Alma to become the county seat.[40] While this was not a serious matter, it would have helped to promote advance, especially during the earlier years. The intense competition between Alma and her neighboring rivals (and the county-seat struggle is only one instance of this) checked growth, especially prior to the railroad developments of the late nineties which gave Alma an advantage that could not be overcome. This inter-city rivalry, however, brought about the promotion of a number of projects by local people which might better have been let alone. Practically none of the various enterprises brought to Alma by the Board of Trade[41] and similar bodies ever proved successful for any significant length of time. This meant that a great deal of local capital was lost because of such misdirected economic activity.

Furthermore, Alma is some distance from large central markets, and this has been a hindrance in spite of the growth of transportation facilities. The town has remained outside the main currents of trade—a condition typical of many similar small communities—and as a result the variations in economic activity have not been as noticeable as in larger centers. To the extent that this has brought about a steadier, more conservative business life, it

[38] A. Hearn and G. Griffen, *Advance Sheets*, Field Operations of Bureau of Soils (Washington: Government Printing Office, 1904).

[39] *Ibid.*; see also L. A. Chase, *Rural Michigan* (New York: Macmillan Co., 1922) p. 113.

[40] W. D. Tucker, *op. cit.*, p. 113. [41] Alma Board of Trade *Minutes Book*.

may have been a cause of growth rather than a hindrance. It is very likely that this condition affected other aspects of life, however. The fact that such institutions as the church and the home remained relatively more important in Alma than in urban communities can be attributed to this influence, in part at least. Furthermore, consumption changes were never as rapid in Alma as in larger places which were located nearer the chief trade centers.[42]

One other deterrent to economic advance should be noted: the absence of a sufficient supply of capital during the earlier years. This point has already been referred to in the discussion of agriculture, but its repetition here is necessary to indicate its significance for other lines of economic activity.

These are factors which have had a special influence on the economic advance of Alma, Michigan. It will be interesting to compare these with the most important determinants of growth in larger cities. A rapid survey of the history of our major cities indicates that the factors which shaped development in many cases were similar to those which dictated progress in Alma. But the larger centers have had additional advantages—and usually have possessed these in such a combination as to make possible a far-reaching advance.[43]

Probably the outstanding difference between these two types of communities is the fact that larger centers have not relied on extractive industries to as great an extent for their economic development as small cities like Alma, and manufacturing has played a greater part in their growth. There are a number of reasons why such developments occurred in particular centers. Nearness to raw materials or easy access to them is a fact of great importance. This alone, however, has not usually spelled success. The city needs to be in the main currents of trade—located either on a navigable waterway (a fact of great importance during earlier years) or possessed of good rail facilities. Alma, for example, was

[42] *Gratiot County Album*, pp. 750–65; see also W. D. Tucker, *op. cit.*, pp. 601–10.

[43] A good discussion of determinants of city growth appears in Richard M. Hurd's *Principles of City Land Values* (New York: The Record and Guide, 1924). Similar material appears in Stanley L. McMichael and Robert F. Bingham, *City Growth Essentials* (Cleveland: Stanley McMichael Publishing Organization, 1928).

just as near the major portion of Michigan's forest area as Bay City, but the latter place developed more rapidly largely because of its position on Saginaw Bay. And just as the peculiar direction of railroad systems in the Alma area gave it an advantage over nearby towns, so the rise of railroad "centers" like Chicago gave such places a greater access to markets as well as to raw materials. Railroad routes have meant the difference between slow and rapid advance for a number of cities, and in some cases they have resulted in the decline of once prosperous centers. The influence of highway development in this regard has not been so noticeable. This has chiefly been due to the fact that relative differences between the facilities provided have not been so marked. Highways apparently have been a more important factor in determining advance or decline in smaller cities.

The importance of manufacturing in explaining the growth of urban centers should not obscure the fact that some cities grow up without extensive manufacturing development. A city located very advantageously as a distributing point may attain great size if it dominates a large, rich tributary area. Centers of population usually attract manufacturing, however, and such establishments attract people. The cause-effect relationship is very hard to determine in most cases.

The rise of urban centers generally cannot be explained in terms of the predominating influence of a single individual such as Mr. Wright in Alma. Such persons may be of importance in determining some growth, but they never stand out as sharply. Detroit has its Ford, it is true, but relatively he never dominated economic advance there to nearly as great an extent as Mr. Wright did in Alma.

As population becomes centered in one place—either because of nearness to resources, excellent transportation facilities, or for other reasons—a market develops. A town or city needs "town builders" first—people who can command income from other places. After the "builders" a number of "town fillers," people who cater to the needs of the former group, can be supported.[44]

[44] These terms appear in F. L. Nussbaum, *A History of Economic Institutions of Modern Europe* (New York: Crofts, 1933), p. 36.

The more builders there are in a city, the larger is the number of fillers who can make their living there. Furthermore, enterprises carried on originally for the local market may in turn expand and begin to derive revenue from elsewhere as well.

The concentration of population makes a large and diversified labor supply available. This alone may not be a cause of growth, but it certainly will not hinder the development of industry. A special type of skill may be available to industry in a particular city, either because of the migration to that place of skilled workers from elsewhere, or because of the development of such capacities locally. The growth of the textile industry in New England cities was in part due to the influence of skilled immigrants from foreign countries. Frequently the laborers of a particular locality will develop special skills because of long association with certain types of work. This in turn will tend to attract industries requiring such aptitudes. The labor supply of Alma was never a factor of great importance in explaining economic advance—a state of affairs typical of many such places.

The bringing together of large numbers of people usually results in some concentration of capital which can then be used for enterprise. Further, the rise of a city, especially one in which the citizens derive their incomes from numerous sources, rapidly results in the accumulation of a significant capital supply which can be used to further economic advance. The relatively limited number of pursuits followed by people in Alma and their dependence on trade with the surrounding agricultural community meant that capital accumulation was a slower process. This is in striking contrast to the rapidity with which capital has been accumulated in many large centers—the case of the automobile industry in Detroit being in point here. Usually, also, the enterprises located in a large city have access to capital markets which draw funds from rather wide areas. This is not the case in cities the size of Alma.

Intercity rivalry and local promotion of expansion have been important activities in larger cities as well as in smaller places—but in many cases such projects were much more successful than the attempts made along this line by various groups in Alma. For example, the competition between Chicago, St. Louis, and Mil-

waukee for selection as railroad terminals is the local struggle of Alma and St. Louis (Michigan) on a larger scale. The success of such promotional activities in larger places, however, has generally been similar to that in Alma—little has resulted unless certain advantages were present to back up the spirit and enterprise of the local promoters.

Government policy has been of varying significance in explaining the rise of large cities. Alma was probably influenced by government policy to a much greater extent than most cities—the sugar tariff stimulated sugar-beet growing and resulted in the sugar factory, and the heavy demands of the government for trucks explained a good share of the advance made by the Republic Truck Company. A number of cities profited by the influences of a protective tariff—although others suffered. The promotion of internal improvements—especially transportation systems—by various governments has often redirected trade routes and spelled success for one place and defeat for another. The classic example along this line is the influence of the Erie Canal on the economic advance of New York City. The strategic position which this canal gave to New York allowed it to forge ahead of other cities on the seaboard. Illustrations of this type could be multiplied, but it is probable that other influences have been of greater importance in shaping the direction and extent of economic development in most places. The effects of government policy, with a few exceptions, are probably more marked in smaller places.

Certain special circumstances may be of significance in explaining the progress of particular places. The selection of a city as the state capital has often been sufficient to give it a great advantage over neighboring rivals. Lansing, Michigan, is a good illustration of this. There was little to favor this city over many other surrounding ones, but the fact that it was selected as the capital was a dominant force in determining advance.

The importance of such institutions as Alma College and the Michigan Masonic Home in explaining the growth of Alma has already been indicated. Many larger cities have developed because they were located in a resort area, or because they became famed for a healthful climate or as amusement centers. The loca-

tion of a state university in a place may be an important factor in explaining development—and similar institutions have played their parts in determining growth in many places. Such establishments, however, never result in a city of great size. They may contribute to advance, but cannot support a great deal without the help of other forces.

Finally, it is well to remember that many cities "just happen" and "just grow." Originally they may possess no greater advantages than Alma had in the sixties. This is not usually the case, but it may be true. One example of such a place is Flint, Michigan. Flint apparently possessed no special advantages, yet when the automobile industry developed, this city rapidly became an important center. But it must be remembered that the extent of the development there was not as great as in other places where the advantages were greater.

In general it is hard to point out a great contrast between the factors which were of major importance in determining the economic development of Alma and those fostering growth in larger cities—the difference seems to be more of degree than kind. The most striking contrasts are the failure of manufacturing to develop in Alma, and the fact that this small city was not in the main currents of trade. Alma profited as much as most places by the influences of government policy and possessed the special advantage of Mr. Wright's interest—but the lack of important natural resources other than agricultural products, the limitation in the amounts of capital and managerial ability available, and the relatively unfortunate location in comparison with the most important lines of trade all combined to prevent as great a development as that enjoyed by many other towns.

ARTHUR WEIMER

ALMA COLLEGE

TAXATION OF FOREIGN AND DOMESTIC GOODS IN CHINA

THE BEGINNING OF REGULAR IMPORT AND EXPORT DUTIES

REGULAR import and export duties in China date from the year 1842, when the Treaty of Nanking was formulated. In compliance with that document the country opened five ports—Canton, Amoy, Foochow, Ningpo, and Shanghai—to the trading vessels of other nations. These "open ports" replaced the exclusive "Co-hong" monopoly at Canton, that for more than 60 years had controlled the buying and selling of goods in foreign trade.[1] It was provided in the treaty that duties were to be collected at each of these five ports, on both imports and exports, under a "fair and regular tariff." That was in marked contrast to the previous arrangements, for under the Co-hong system the usual limit to the exactions had been "what the market would bear."[2] A specific duty, determined in conference with a representative of Great Britain, was fixed for each article. The resulting tariff, equal to 5 per cent of the "value"[3] of the goods, was embodied in a special supplementary treaty.[4] Soon afterward the United States and France obtained similar agreements with identical specific rates of duty. The rate was purposely set at the low figure of 5 per cent so as to interfere as little as possible with the volume of trade.

THE TIENTSIN TREATY

The specific duties remained unchanged until after the signing of the "Treaty of Tientsin" in 1858, which followed the second war between Great Britain and China, and in which France also took a hand. The 5 per cent ad valorem duty was reaffirmed, but,

[1] Hertslet, *British and Foreign State Papers, 1841–1842* (London, 1879), p. 389.

[2] H. B. Morse, *International Relations of the Chinese Empire* (London, 1910), p. 5.

[3] "Value" was to be equal to cost, freight, insurance, and landing charges.

[4] Hertslet, *Treaties, 1841–42* (London, 1908), Treaty of Nanking, Art. V and Art. X.

"since the fall in the value of the goods taxed had caused the specific amounts of the duty to be in excess of 5 per cent of the value of the goods," they were lowered the requisite amount.[5] The revision was made under British supervision. The United States and France made corresponding adjustments in their treaties. The Tientsin Treaty, moreover, made provision, upon 6 months' previous notice, for a decennial revision of the amounts of the specific duties so "that they may be held to about 5 per cent of the value of the goods imported."[6] No modifications were made at the end of the following two decades, because no important changes in prices took place; but in 1888, there now having been a considerable decline in the value of goods, the subject of a general revision was brought to China's attention by Great Britain.[7] No action was taken, however. The Chinese authorities did not favor a reduction in the amount of revenue derived from imports and exports, and Great Britain did not press the point, so matters were left as they were.

THE STRUGGLE FOR AN EFFECTIVE 5 PER CENT DUTY

From 1898 on, conditions changed; prices rose, and the specific duties fell below the 5 per cent ad valorem. The Chinese government was the loser now, and it in turn called the attention of the several treaty powers to the difference between the actual and an effective 5 per cent rate.[8] For some years, however, these powers, of which there were now fifteen with practically identical treaties relating to the tariff, were entirely unresponsive to the request. But, in 1902, after the Boxer Uprising, and after China had been burdened with the cost of its suppression, and faced the payment of interest and amortization on what for her was an extremely heavy burden of debt, it was decided to revise the specific duties upward. Payments could in that way be guaranteed, in large part at least, by the receipts from import and export taxation.

[5] H. B. Morse, *op. cit.*, p. 13.

[6] Hertslet, *Treaties* (London, 1908), Treaty of Tientsin, Art. XXVII.

[7] H. B. Morse, *op. cit.*, p. 469.

[8] M. T. Z. Tyau, *China's New Constitution and International Problems* (New York, 1918), p. 182.

THE MACKAY TREATY

While the treaties were being formulated by the powers at Peking, and while the means were under discussion by which China could best meet its Boxer indemnity obligations, the possibility of the need, at some time in the future, of a higher rate of duty on imports was foreseen. Indeed, Germany and Russia favored an immediate increase to a 10 per cent ad valorem duty.[9] The objection of Great Britain prevailed, however, and the 5 per cent rate was maintained. But it was stipulated in the Mackay (British) Treaty that, as soon as China abolished likin and other levies on goods in transit, the former country would agreee to an import tariff not to exceed 12½ per cent ad valorem and an export duty on native goods not to exceed 7½ per cent. The proposal was held in abeyance for many years, however, both by the inaction of the powers and by the fact that China was not really in a position to carry it into effect.

FURTHER ATTEMPTS TO MAKE THE 5 PER CENT RATE EFFECTIVE

The specific amounts of the import duty were now raised to bring them to a more effective 5 per cent basis by taking the average prices for the years 1897–99 as a starting-point. The new rate went into effect in October, 1902. Due to a continued rise in prices, however, the specific amounts of the duty soon again lost their effectiveness, and in 1912 the Chinese government felt compelled to ask the powers for another revision. At this time, moreover, she also made known her desire for the higher rate and indicated a willingness to comply with the provision predicating the abolition of likin and of other inland taxes. The request went entirely unheeded until toward the end of the World War, when, for purely selfish reasons, the Allied powers agreed to a revision, and fourteen of them sent representatives to Shanghai for that purpose. The average of the prices for the years 1912–16 was taken as a new basis, and for the time being an effective 5 per cent rate was established.[10] Besides thus making the duty more acceptable,

[9] K'o-hsuan Tsai, "Financial Reform in China," *Chinese Political and Social Science Review*, XII (April, 1928), 268.

[10] Tyau, *op. cit.*

China was promised a further tentative revision to take place 2 years after the close of the war. The revised schedule went into effect on August 1, 1919. It was not long, however, until the still continuing rise in prices again shuffled the specific duties out of line, and the effective 5 per cent rate for which China had now been contending for so many years proved as elusive as ever.

THE TAX ON OPIUM

There had been one notable exception to the fixing of the 5 per cent as the duty on all import commodities. That was opium. The supplementary treaty of 1842 was absolutely silent on any duty on that article of trade. Although China was urged by the British to place a tax on it, she would not consent because its import had been forced upon her against her will. Thus considered contraband, it was, nevertheless, permitted to enter through customs under British pressure by the tacit connivance of the revenue officials. When the Treaty of Tientsin was formulated in 1858, China did agree to its lawful importation under a regular duty. A tax of 30 Taels per chest of one hundred pounds was now included among the imposts. In 1885, Great Britain agreed to an additional surtax of 80 Taels per chest, after turning down a request for a much higher duty.[11] As a compensating measure she agreed to prevent her own merchants from handling it in the interior. Inland distribution was thus left to the native trader, who could be made to pay the much higher likin charges, while the Britisher was usually provided with a transit pass (see p. 236). There was no further change in the rate until in 1911, when Great Britain agreed to an import duty of 350 Taels per chest. The odium of the traffic in opium finally became so great, however, that in 1917, when China was making a real and determined effort to get rid of the evil, it was stricken from the list of permissible imports, except in tincture form for medicinal purposes. Great Britain, however, reserved the right for her merchants gradually to dispose of a large accumulation at the port of Shanghai.

THE PEKING CONFERENCE

The promised revision of the 5 per cent rate was taken up for discussion at the Washington Arms Conference in 1921–22 at

[11] Hertslet, *Treaties* (London, 1908), Treaty of Tientsin, XXVI, 68.

China's request. There was no final action, however, principally because of the opposition of France. The so-called Nine Power Agreement was arrived at, on the other hand, by all the powers present. It was arranged in this to hold a further special conference in Peking.[12] This body was empowered to take up, besides the question of likin abolition, the addition of a surtax of 2½ per cent or of one-half the existing duty on imports. It also held out the promise of higher surtaxes on luxuries up to a limit of 5 per cent ad valorem, of the introduction of regular septennial revisions, and of the possibility of the abolition of the lower overland rates[13] (see p. 236).

In accordance with the foregoing arrangements, the Chinese Customs Conference met at Peking in 1925. China was in a very disturbed condition at the time, and there was no single authority that could speak for the whole country.[14] Several regional factions, in fact, were not represented at all. There was, however, what may be called an agreement in purpose. The questions outlined by the Washington Conference were taken up and discussed. The Chinese representatives, moreover, soon made it known that they wished the question of tariff autonomy brought up for consideration. It was not the first time that demand for independence in tariff-making had arisen. It was first voiced by the Chinese before the powers at the Versailles Peace Conference, where it received no attention whatever. Next, it was more definitely stated at the Washington Arms Conference. Here the Chinese representative, V. W. Koo, asked that the right to fix and differentiate the import duty be restored to China after the lapse of a certain period, and that immediate relief be granted by allowing an increase in the existing duty.[15]

The Washington Conference, while not rejecting the plea of autonomy in tariff-making, was noncommittal on the question. It directed the forthcoming Peking meeting to take up the ques-

[12] Tyau, *op. cit.*

[13] Tachun Wu Chin, "Duties and Taxes on Imports into and Exports from China," *Chin. Pol. and Soc. Sci. Rev.*, 1927, p. 287.

[14] *American Relations with China*, Johns Hopkins Conf. (Baltimore, 1925), p. 191.

[15] K'o-hsuan Tsai, *op. cit.*, p. 264.

tions which have already been enumerated. The Chinese counter-proposals at the Peking meeting were, first, a demand that tariff autonomy be granted in exchange for abolishing the likin tax, and, second, that in the interim before its accomplishment a tax rate be levied on imports considerably higher than the tax proposed by the powers. It was suggested that this tax be 10 per cent on ordinary goods, that it be 20 per cent on luxuries in general, and that on wines and tobacco a tax of 30 per cent be levied; also that the higher rates begin within 3 months from the date of the meeting. The Americans were on the whole sympathetic with the Chinese point of view. They named, however, substantially lower rates, more in harmony with those proposed at the Washington meeting. They were, a $2\frac{1}{2}$ per cent surtax on necessities, one of 5 per cent on luxuries, and one of 15 per cent on wines and tobaccos. These rates, although higher on luxuries and on wines and tobaccos than those suggested at the Washington meeting, were finally adopted as a basis for the work of the experts. They were acquiesced in by all the foreign delegates except the Japanese, who did not want to commit themselves to any rates higher than those previously suggested at Washington.[16] The American delegates, and soon afterward the other members of the Conference, accepted the proposition of tariff autonomy as a proper subject for discussion. They gave the Chinese delegates to understand that if likin and the other objectionable taxes were abolished no opposition would be encountered to practically autonomous tariff reform. It was thereupon proposed that the rates promulgated at the meeting be temporary, and that not later than January 1, 1929, a new national tariff law go into effect which should express the wishes of the Chinese and which would not run counter to those of the powers.[17] It was predicated, of course, upon the elimination of the objectionable inland transit levies and likin.

NANKING BREAKS THE WAY FOR THE NEW TARIFF

The Tariff Conference adjourned, however, without reaching a final and definite agreement on any of the matters brought before

[16] *Ibid.*

[17] "China in 1927," *Chin. Pol. and Soc. Sci. Review*, January, 1928, p. 186.

it. In consequence, the surtax suggested at the Washington meeting continued to be collected by the Peking government. The Nationalists, or the Nanking régime, on the other hand, although they had taken no part in the Peking meeting, immediately adopted the temporary higher rates suggested there. Moreover, they soon extended these rates to practically all parts of China as their power and sphere of control grew and those of Peking waned. They went ahead without asking further consent or advice of the treaty powers.[18] The recognition of autonomy in taxation for China by the United States and by the other treaty powers gave the Nationalists their cue in the matter, even though the work of the Conference was not considered final. On December 7, 1928, they promulgated the National Tariff Law to go into effect on February 1, 1929. It provided for a graduated scale of import duties on foreign goods, varying from $7\frac{1}{2}$ per cent ad valorem on necessities to $27\frac{1}{2}$ per cent on luxuries. The new law also mildly applied the protective principle as it tended to bear somewhat more heavily on products that competed with manufactures in China than on those that did not. It was the first use of the protective principle in Chinese history.[19]

THE NEW NATIONAL TARIFF LAW

The step taken by the Nationalist government was a radical one. From complete dependence upon the treaty powers to one of almost entire independence in the matter of tariff making was really a momentous change. The powers acquiesced with only a mild ripple of opposition, even though the Nationalists virtually ignored the spirit of the Nine Power Agreement. It had, moreover, been understood at Peking that likin and other transit dues would be abolished immediately or very soon, after the "New Tariff Law" went into effect. The Nanking government modified its position in this regard and gave the powers to understand that they would be done away with as soon as feasible. Immediate abandonment of these levies without a proper adjustment for the

[18] Arthur G. Coons, "Five Years of National Government Finance," *Chin. Pol. and Soc. Sci. Review*, XVIII (April, 1934), 74.

[19] *Ibid.*

provinces was, they claimed, entirely out of the question, since it tended to disrupt their entire fiscal policy.

The Nationalists were, of course, greatly encouraged by the tacit consent of the powers and the success of their fiscal and economic measures embodied in the tariff. They soon made further changes that fitted in with the policies of protection and of greater revenue. Before the end of the year, the duties on dyes, autos, cotton yarns, and on the higher grades of leaf tobacco had been increased, while the duty on the lower grades had been decreased. The tax on gasoline was also reduced—a further extension of the protective principle. More changes were made in 1932. Effective August 4, the import duties were increased on all silk and rayon products, on medicines, dyes, indigo, spices, and condiments; and in December of the same year the import duty on liquid fuel was increased from a nominal 2.90 to 23.4 gold units per ton.[20] Effective January 10, 1933, the duty on lower priced leaf tobacco was again reduced. On December 5, of that year, the tax on domestically manufactured cigarettes was increased to 160 yuan for those priced above 300 yuan per case of 50,000 and to 80 yuan on those below that price.[21] On the 16th of the same month an import duty was imposed on wheat and other grains. These had previously been on the free list. The duty on wheat flour was trebled. Again on July 3, 1934, numerous changes were made. There was an increase in the duty on raw cotton, metal manufactures, food stuffs, chemicals, pharmaceutical products, certain dyes, pigments, paints, varnishes, mineral lubricating grease, lumber, coal, scientific instruments, rubber products, toilet preparations, and photographic and cinematographic products. At the same time there was a reduction on cotton piece goods and on fish and sea-foods.[22]

THE NEW GOLD UNIT

The total net revenue of the government in the years 1929–32 shows a very considerable upswing at a time when the price of sil-

[20] U.S. Bureau of For. and Dom. Commerce, Depart. of Commerce, *Commerce Reports*, August 15, 1932, p. 299.

[21] *Ibid.*, June 21, 1933, p. 44.

[22] *Ibid.*, July 14, 1934, p. 28. The yuan is the new Chinese dollar in silver.

ver was almost constantly declining. In fact, it almost doubled in this period. The increased return was largely due to abandonment of the Haekwan Tael, the silver unit, used for customs computations, and the substitution therefore of a gold unit equivalent to $0.40 in United States money.[23] By this means the major revenue source of the government, the customs, was freed from the declining and fluctuating value of silver, and the discharge of foreign obligations in gold was greatly facilitated. Without this substitution China would have faced almost certain bankruptcy. Another factor that has increased customs revenue without a change in the rates has been the substitution of the metric system of measurements for the mixture of Chinese, American, British, and metric units, which went into effect February 1, 1934.[24]

THE SURTAX

How far China has traveled from the old treaty-power-imposed tariff, which was limited to a bare 5 per cent, is indicated by the fact that in 1931 a customs surtax of one-tenth could be levied for flood relief purposes. It was levied on imports and exports alike. The surtax was levied at this rate for 6 months, when it was reduced to one-twentieth. This has been extended several times, and recently the government has announced its intention of continuing it until the American wheat loan has been liquidated. The surtax has not, however, been levied on all countries alike. In May, 1930, China had entered into an agreement with Japan that for a period of 3 years there would be no increase in the existing duty on cotton goods, flour, sugar, sea-foods, and beer. Under the most-favored-nation clause, the United States and several other countries were also exempt. The articles included seem, however, to have been principally of Japanese origin. In consequence, there was a good deal of feeling against Japan, the claim being that the exemption favored that nation and was ruinous to home industry. When the agreement expired the surtax was applied to all countries alike, and the feeling subsided.[25]

[23] Coons, *op. cit.*, p. 59.

[24] *Commerce Reports*, December 9, 1933, p. 381.

[25] *Ibid.*, May 27, 1933, p. 331.

THE EXPORT TAX

The export duty has already been mentioned. It began with the import duty and the rate was made the same for both. There was one revision, that of 1858, which was downward. Then for a period of 70 years, or until 1927, there was no change. In that year the specific duties, which by this time did not average more than a fraction of an effective 5 per cent rate, were increased by one-half. This was the increase which had been suggested as early as 1902. A new export tariff went into effect 4 years later in 1931, which heavily increased the specific duties on a number of articles, notably on wool and egg products. The aim seems to have been to make the duty yield an effective 5 per cent without a surtax of $2\frac{1}{2}$ per cent.[26] That this was a step in the wrong direction, because China had embarked on the idea of protecting and fostering home industry, was evidently realized, for on June 30, 1934, the duty was either entirely removed or greatly reduced on a large number of articles.[27] The purpose was the fostering of the export trade. The government, however, had long before realized the folly of a high export tax in the matter of tea. When reductions were made in 1858 on all other articles, the duty on tea was not changed, and was left relatively high. Then, in 1862, Russia persuaded China to reduce the duty on brick tea exported by way of Mongolia and Siberia to a nominal 6 mace per picul, or about one-fourth cent per pound. This low rate greatly stimulated exports to Russia, while tea-exports paying the regular duty languished.[28] In October, 1919, all teas were placed on the free list and no duty was levied thereafter. In 1932, the duty on raw silks was removed and with it a special tax for Kiangsu and Chekiang exports of this article. The latter, however, was restored in May, 1934, as a special silk improvement loan tax, amounting to $30.00 per bale, local currency.[29]

[26] *Ibid.*, June 1, 1931, p. 23.

[27] *Ibid.*, June 22, 1931, p. 739; June 15, 1931, p. 23; June 30, 1934, p. 412.

[28] U.S. Bureau of For. and Dom. Commerce, Dept. of Commerce, *Commercial Handbook of China*, 1920, II, 105.

[29] *Commerce Reports*, June 15, 1934, p. 625. Local currency has fluctuated from 25 cents to 40 cents in U.S. currency.

THE OVERLAND RATES

In order to promote the overland trade to and from Russia, China was induced by that country to enter into an agreement whereby goods traveling the overland route would be entered through the customs at one-third less than the regular rates. This concession, which was made in 1862, was soon claimed by other powers under their most-favored-nation clauses. First Great Britain obtained it for goods coming overland from India. Then France demanded it for the southwest frontier, and finally Japan claimed it for goods going by rail through Corea. What in the beginning was a concession for an especially costly camel route came to be demanded for all overland trade regardless of costs.[30] The Nationalist government, however, has ignored the lower duties in the New Tariff Law and imposed the full rate, and ignored the protests of the powers concerned.

THE MARITIME CUSTOMS ADMINISTRATION

The most important problem in connection with the duty is its collection. Early in its history this function had slipped from Chinese into British hands. Soon after the customs service had been established, there was much complaint of irregularities and of inefficiency. The opportunity better to control the unsatisfactory situation came in 1854, at Shanghai. That port had fallen into the hands of a branch of the Taipings, and the customs service was disrupted. The foreign consuls selected a temporary foreign board to look after the customs.[31] The expedient proved very satisfactory to the foreign traders, and China was induced to make the Board a permanent body in charge of all the customs. This was the beginning of the Maritime Customs Administration, now the foremost agency for handling revenue for the Chinese government. It is a body of native and foreign officials under the immediate direction of an inspector general. The first incumbent was a Britisher, and in 1888, the Tsung Li Yamen agreed, in view of the great preponderance of British trade in China, that in the future as in the past the inspector general should always be of

[30] *Commercial Handbook of China*, 1919–20, II, 84.

[31] H. B. Morse, *op. cit.*, pp. 13–33.

British nationality.[32] In 1927, however, the incumbent was summarily dismissed by the Nationalists and in January, 1929, a new man was appointed as one more sympathetic to China's point of view. From being an entirely independent office it was now changed to a subordinate position under the ministry of finance.[33] The change was not made without ineffective protests by foreign powers interested. Foreigners also are no longer recruited to the staff of the service, except as technicians.

THE TRANSIT DUES

Transit dues have already been mentioned. They were in effect long before the Treaty of Nanking. At that time it was agreed by the negotiators that British merchandise, after payment of the customs duty and an additional reasonable amount, could be sent into the interior to any point by native merchants without any additional levies. No definite amount was named, however. That the duties had been very onerous to the British merchants is indicated from the fact that far back in 1792, Lord McCartney had been sent to China as extraordinary ambassador on a mission to have them modified and regularized; and in 1816, Lord Amherst was sent on a similar errand. Both failed in their endeavors, and the unsatisfactory status of the oppressive levies continued as before. The Nanking treaty (1842) did not alter conditions.[34]

THE TRANSIT PASS

Partial relief came from the Treaty of Tientsin (1858). It empowered the Maritime Customs Administration to issue a "transit pass" at a cost of 2½ per cent ad valorem, or half the customs duty. This pass exempted foreign goods and those intended for export en route in the interior from any payment to the provincial au-

[32] U.S. Bureau of For. and Dom. Commerce, Dept. of Commerce, *China Handbook*, 1926, p. 84.

[33] Coons, *op. cit.*, p. 76.

[34] The British (Tientsin) Treaty of 1858 says: "Whereas it was agreed in 1842 that British imports having paid all the tariff, should be conveyed into the interior free of all further charges except the transit duties and whereas no accurate information having been furnished of the amount of such duty, British merchants have constantly complained that charges are suddenly and arbitrarily imposed by the provincial authorities as transit duties on produce on its way to foreign markets and on imported goods on their way to the interior to the detriment of trade."

thorities, the intention being to relieve both native and foreign traders from contact with the tax gatherer. The pass was optional.[35] Wherever it was accepted it deprived the native authorities of the right to collect the tax. The amount collected for the pass was credited to the province's account. The pass meant a saving to the merchant who had to ship his goods long distances or had to encounter stations that charged the more excessive rates. On shorter journeys or for stations with the more reasonable rates, there was no point in taking out the pass. In some instances, the provincial authorities actually lowered the rate so as to maintain the collection of the tax. The principal difficulty was that stations refused to recognize the pass in native hands.[36] It was a gain to export trade when the right was given to foreigners to carry native goods in junks, because no provincial official, however callous he might be to the virtues of the pass in native hands, failed to recognize it in those of a foreigner.

The transit pass tended to place an additional burden upon native goods intended for native consumption. No pass could be taken out for them, and many native officials tried to recoup a part of the lost taxes by more onerous levies on native goods and native traders. As a result, it came to be a common practice to have such goods certified as if intended for export and to carry a foreigner as a supercargo.

LIKIN

The unsatisfactory status of inland taxation was greatly enhanced when likin came in during the Taiping Rebellion. It was probably the successor of levies of a similar nature resorted to far in the past in periods of stress by provincial authorities.[37] Likin stations were set up at all the strategic points along the commercial highways of the country. At first the charge was one-tenth of 1 per cent, based on the value of the goods, gross weight. The tax, however, soon outgrew this figure, and finally it amounted to as much as 2 and 3 per cent. The amount varied from station to station because there were differences in the rate of exchange, in the

[35] Hertslet, *Treaties* (London, 1908), British Treaty of 1858, Art. XXVII.

[36] Stanley F. Wright, *Kiangsi Native Trade* (Shanghai, 1920), p. 109.

[37] Dr. Georg Wegener, *Im Innersten China* (Berlin, 1926), p. 53.

cost of transfer of money, and in the delay and vexations caused by the dilatoriness of the officials in the examination and inspection of goods. Likin taxation surrounded the movement of goods with a maze of intricacies that only the experienced and sometimes unscrupulous trader knew how to unravel. It worked to the advantage of the large and powerful trading companies and the guild organizations, because the larger the lots of merchandise, the easier was evasion through the compounding of rates into lump-sum payments, through underweighing, and through bribery. They were also better able to forestall delays in the examination of goods. The limit of likin within any one province was about 10 per cent of the value of the goods. The total paid, however, seldom reached that figure in any one province unless the path lay clear across it into another province.[38] In several provinces the likin was standardized into a departure and destination tax. It amounted to 2 or 3 per cent of the value of the goods at each of two stations, one at the beginning and one at the end of the journey. Likin was a provincial tax; but it was collected on the Luhan and other state-owned railways as a $2\frac{1}{2}$ per cent addition to the transportation charge. For longer journeys, an additional charge of an equal amount was made, at the end of the trip. Since likin was based on the weight given in the bill of lading, there was no opportunity for compounding the amount; and for this reason much traffic that would ordinarily have gone by rail chose water and overland transportation, where opportunities for compounding and underweighing were greater. Many bitter and fruitless struggles were staged at Peking over the validity of the likin because it impinged on the privileges of the transit pass. Since it was levied on the native trader by the provincial governments for their own account, little or no relief could be obtained from the central authorities by foreign representatives. In 1873, China signed away the right to collect likin in the foreign concessions. There were now many more treaty ports with foreign concessions than the original five. Since these included the most important trade centers of the country, it was no small gain for foreign and

[38] Lord Charles Beresford, *The Break Up of China* (New York and London, 1899), p. 184. *Commercial Handbook of China*, II, 209.

domestic trade. In the Tientsin area also, there was freedom from likin in the trade with Manchuria and Mongolia; and this fact alone conserved that trade for China.[39]

TRANSIT TAXES OTHER THAN LIKIN

There were many other taxes in China of a provincial nature that ran counter to the transit pass. While that document was of little avail against these, the trader usually paid them under protest. Thus Anwhei, Chili, Honan, and Kiangsi had a so-called "loti shui" or destination tax. There was also a boat tax for the interception of goods that did not go by rail. Chekiang had a coast tax, and Hupeh a war tax. A gate tax was levied in Hupeh, Shansi, and Szechuan, and a li radius tax in Kiangsi and Shantung. A so-called provincial tax was levied in Shansi and Szechuan, and a military and a canal tax in Shantung.[40]

DISADVANTAGES OF NATIVE SHIPPING

The burden of multiple taxation rested heavily both on imports and on goods destined for export. But there were many more cases where it bore most severely on the native trader handling goods for native consumption. Sometimes the low import duty gave an advantage to the foreign importer. Thus, lumber from abroad paid 5 per cent, while timber from Kweichow province moving to Hankow or Shanghai had to pay a total of 17 per cent in inland charges. Hangchow silk, shipped from there to Peking by native merchants, paid a total of 18 per cent, while the foreign trader could ship the same silk via Tientsin under the protection of a transit pass for 2½ per cent.[41] Cotton could be sent more cheaply from the Yangtze valley to Japan than to Shanghai. In several provinces native cigarettes shipped in from Shanghai could not compete with the foreign article, to which the transit pass did not apply. Canton sugar at one time went to Hongkong in native junks, but later was sent in foreign bottoms entirely so as to avoid the likin that the authorities exacted from native shipping.[42] An article of the Chefoo Convention provided that goods

[39] *Commercial Handbook of China*, 1920, II, 209–10.

[40] Information gathered from records of foreign companies in China.

[41] *China Handbook*, 1926, p. 208. [42] *Ibid.*, p. 209.

made from imported materials could go to the interior free of tax if a special exemption certificate was obtained. This arrangement favored the treaty port at the expense of other producing centers.[43]

ABOLISHING LIKIN

It is evident from the foregoing that the likin and transit dues were typical examples of thoroughly vicious revenue producers. Merchants, both foreign and domestic, were intensely opposed to them. Foreign governments argued against them at the Peking court, and they were not defended. Yet, in spite of so much opposition, they continued to be a part of the Chinese tax system. The provincial authorities had come to depend upon them so largely without seeing any substitute that they stayed on. The national government could not help because its available income was strictly controlled by the powers. In 1858, it had been suggested that British merchants pay whatever inland dues would be demanded but that any payment above half the export duty be refunded by the port authorities. This suggestion was rejected by London. The Mackay Treaty, as has already been seen, provided that, if China would do away with likin, it might raise the duty from 5 to 12½ per cent. In 1921, the Washington Conference promised a 2½ per cent surtax under the same conditions. The Peking government made promises at the Tariff Conference in the same city, in 1925 and again in 1927, but failed each time to live up to them. The growing Nanking government tackled the problem in a different manner; it raised the duty first and proceeded to deal with the likin afterward. It first tried in 1926, but, on account of the limited territory it controlled, failed in its effort. Again on October 10, 1930, it issued a mandate to abolish likin, which still had no effect.[44] Then on January 1, 1931, it swept away the old native customs, which had applied to the junk-borne trade of Hongkong and of the Yangtze River, the native trade in and out of treaty ports, and the land frontier trade.[45] But on January 31, 1932, 3 years after the duties had been raised, the mandate to abolish likin again went forth and this time met with a far

[43] Hertslet, *Treaties* (London, 1908), Treaty of 1858, or Chefoo Convention.

[44] Coons, *op. cit.*, p. 79. [45] *Ibid.*

greater degree of success. Only a few border provinces are still clinging to it. Szechuan is one of these, and there all the old-time duties are enforced.[46] Since no likin abandonment could be successful that did not give the provinces an adequate *quid pro quo*, steps were taken to divert the land tax to them. This gave the provinces an income of about one hundred million dollars in exchange for an equal amount of likin collected, figured on a net basis. Some provinces receive subsidies in addition to the land tax.

TAXES TO TAKE THE PLACE OF THE LAND TAX

In order to provide revenue in place of the land tax, the China Central Political Council adopted regulations for the collection of excises in addition to import and export duties. A law of February 1, 1931, selected cotton yarn, matches, and cement as the first group of 19 classifications for revenue tax purposes. To this has been added rolled tobacco or cigarettes and wheat flour. The levies on these classes, together with the stamp tax and that on wines which was left intact when likin was removed, have been placed under the control of the Internal Revenue Administration. In 1932, the combined income from these levies produced almost the equivalent of what the government gave up when it relinquished the land tax to the provinces. This excellent showing has been made in spite of the fact that all has not been smooth sailing. The internal revenue levies are intended to apply to native and foreign goods alike. In districts where "foreign concessions" are located, however, the consular officers have held that these levies are not applicable to foreign merchants, basing their claims on extraterritorial privileges. There has as yet been no yielding on this point, and what the final outcome will be is an open question. Since this situation discriminates against the native traders, it has been the policy of some foreign firms to make price concessions to them.[47]

THE SOURCE AND DESTINATION TAXES

The internal revenue taxes are not, however, the only inland taxes since the likin has practically disappeared. There is another

[46] *Ibid.*, p. 80. [47] *Ibid.*, p. 81.

group of levies which has drawn the ire and opposition of the merchants. They are the so-called source and destination taxes. The objection to them has been based upon the contention that the transit pass exempted all goods from inland taxes. The government admitted the illegality and the objectionableness of likin and kindred levies, and excused them on the ground of dire necessity for the provinces. The foregoing taxes, however, have been clothed by the Chinese with a semi-legal status. The claim has been advanced that the transit pass holds good only during the time that the goods are in actual transit, but that before they begin their journey and after its completion the pass had no protective value whatever. On this basis the local, the provincial, and the central authorities have levied destination, shop, production, consumption, and stamp taxes and octroi upon both native and foreign goods without distinction.[48] The British and Americans and most other nationals have acquiesced, although under protest, but the Japanese and the French have been more forceful in protecting their own nationals from the imposition of these levies.

THE SALT TAX

Salt stands apart as a commodity in trade. It is a government monopoly and only duly appointed salt merchants are supposed to handle it. No salt enters into the foreign trade of the country, none of it being exported and its import is strictly prohibited. From time immemorial it has been an important source of income to the central government. Beginning with 1895, however, a part of this revenue was hypothecated to foreign syndicates. In that year certain salt taxes of Kiangsi were pledged as security for the Nanking Loan. In 1901, the salt revenues of certain parts of the Yangtse Valley and of Chekiang were pledged, and the collection was placed under the jurisdiction of the Maritime Customs Authority. The Hupeh and Hunan salt revenue was pledged in 1911 for the Hukuang Railway Consortium Loan; the Crisp loan of 1912 was based on salt, and likewise the Consortium Reorganization loan of 1913. Later the entire service was made an integral

[48] *Ibid.*, p. 81.

part of the salt administration, and a foreigner was appointed as associate chief inspector.[49]

During the period of foreign incumbency of the office, from 1914 to 1924, the income from salt was normal; but the period from that year to 1927 was one of internal strife, and less than one-seventh of the normal amount flowed into the coffers of the Nanking government. As the Nationalist power increased, and that of the war-lords faded, the income increased again. When it was at its lowest in 1926, however, control of the salt revenue was taken out of the hands of the foreign associate chief inspectorate and placed under the supervision of the Ministry of Finance. The measure was protested by the foreign governments interested. Nanking stood firm, however, until in 1928, when the foreign administration was restored; but it was then placed under the direct supervision of the Ministry of Finance. The revenue collected has been diverted, moreover, to domestic uses and the foreign loans have been allowed to default both as to principle and interest. Under the new administration there has been a great increase in the amount collected. This has been due to greater uniformity in the tax rate and to a gradual elimination of the "farmed-out" areas.

TARIFF POLICY OF THE NATIONALIST GOVERNMENT

That China was not expected to assert her complete independence from the dominating influence of the treaty powers in the making of her tariff seems to be indicated by the fact that at Washington, and again at Peking, there was the suggestion of a graduated horizontal increase in the duties without much reference to the particular wishes of that country. Moreover, when the powers gave a tentative autonomy to China in tariff matters, it was given with the idea that she would abide by their wishes; that she would hold herself pretty closely to the rates laid down at Washington—or at least to those of Peking. The Nationalists, however, departed immediately from the rates laid down at Washington, and in the New National Tariff embarked on a policy of protection for China which undoubtedly was widely at variance with the wishes of at least some of the treaty powers. The government

[49] *Ibid.*, p. 83.

has aimed to make more difficult the importation of goods that directly interfere with the industrial and commercial development of the country and, on the other hand, to promote importation of those goods that aid it. The dream that China could become the dumping-ground for the surplus products of other nations thus recedes definitely into the background.

The Nationalist government has been wisely discriminating in its protective policy. The highest duties have been placed on articles in the luxury class, while articles of common consumption bear a low rate or have been placed on the free list. The policy pursued can be said to be one "of live and let live." The rates of duty thus far announced, except on silk and rayon, are far from prohibitive, and the free list on imports as well as exports is growing.

ALBERT C. MUHSE

THE TORONTO
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INDIVIDUAL EMPLOYER RESERVES IN UNEMPLOYMENT INSURANCE

SOME of our states, in enacting unemployment insurance legislation, will probably follow the pattern set by Wisconsin. The prestige of the Wisconsin Unemployment Reserves Act[1] is enhanced by the fact that individual employer reserves are an innovation peculiar to the United States and in line with the "best" traditions of individual responsibility for the conduct of one's business. In fact, this form of unemployment insurance is so acceptable to conservative business interests that the United States Chamber of Commerce has given it its indorsement.[2] Under these circumstances it seems worth while to add to the perennial controversy as to the relative merits of the pooled state fund (Ohio plan) and the individual employer reserve a few observations regarding the recent experience with one of the pioneer plans for individual employer reserves. This is the agreement in the Chicago men's clothing industry. Incidentally, it is one of the few joint employer-employee plans to survive the depression.[3]

The Chicago men's clothing industry is declining both in number of employees and in number of firms. The industry is also highly seasonal, and these facts make it more difficult to establish unemployment reserves than in more stable industries.[4] There are, however, important seasonal or declining industries in all states at all times. More specifically there are individual employers whose problems under a system of individual reserves would be similar to those in the men's clothing industry.[5] The conclusions drawn in this study have taken into consideration the fact that the industry has suffered from more unemployment than is typical.

[1] For convenience this act will be referred to hereafter as the "Wisconsin law." A vigorous defense of this law is made by Harold M. Groves in the *American Labor Legislation Review*, September, 1933. The annotated text of the Wisconsin law may be found in R. S. Hoar, *Wisconsin Unemployment Insurance* (1934).

[2] *Nation's Business*, October, 1934, pp. 15–18, 61, and 62.

[3] *Monthly Labor Review*, June, 1934, p. 1289.

[4] See further R. J. Myers, "Seasonal Unemployment Insurance," *American Economic Review*, September, 1931.

[5] The series of articles "Unemployment Benefit Plans in the United States," *Monthly Labor Review*, June, July, and August, 1934, give evidence that the experience in this industry is not unique.

In 1923 the Amalgamated Clothing Workers Union and the employers in the Chicago men's clothing market entered into an agreement[6] establishing an unemployment insurance system under which the reserves of each employer, except contractors, were kept separately. As in the case of the Wisconsin law, one of the primary aims of the union and employers in adopting the insurance plan was that of preventing unemployment. It was believed that individual insurance accounts would be an incentive to clothing manufacturers to reduce the amount of seasonal and irregular unemployment.[7] The clothing contractors were required to pool their funds because of the small size and uncertain economic life of their shops. We note in passing that the Wisconsin law does not meet this problem of the instability of smaller establishments, but avoids it in part by limiting the application of the law to employers of ten or more persons.

Under the Chicago plan the employers and union members at first each made equal contributions to the fund of 1½ per cent of the pay-roll. In May, 1928, the employers' share was increased to 3 per cent of the pay-roll—a total employer-employee contribution of 4½ per cent. Benefits are 30 per cent of average weekly wages of each employee, and payments are limited to 7½ weeks in any one year, or 3¾ weeks in a season.[8] Benefits are paid at the end of each season, and in practice all employees in a firm draw the same number of weeks' benefit each season.

The volume of employment in the Chicago men's clothing industry has been continuously falling, from 19,000 employees in 1926 to 12,500 in 1933. The number of firms also decreased rapidly, from 206 in 1926 to 90 in May, 1933. This decline occurred chiefly among the small contracting firms. Despite the lessening in total number of firms, some new ones continued to enter the market even during the depression years. There was, then, not only a drastic secular decline in number of firms, but also a high turnover of firms and consequently instability of insurance reserves. When a firm discontinued business, its employees had to find employment elsewhere, and in many cases suffered

[6] This agreement will be referred to as the Chicago plan.

[7] An account of the early history of the Chicago plan may be found in B. M. Stewart, *Unemployment Benefit Plans in the United States* (1930).

[8] The industry has two seasons which run from May to November and from November to May.

unemployment lasting for months, and, in a few cases, years.[9] Except for a "market fund" constituted by a levy of 5 per cent of all contributions to the insurance reserves (a modification in the direction of pooled funds not found in the Wisconsin law), the only insurance protection available for these workers consisted of the accumulated reserves of the company. The maximum reserves required of a firm were only sufficient to pay 15 weeks' benefit per employee. But even the clothing firms with the least unemployment have been unable to accumulate the maximum reserves, and many of the weaker firms have discontinued business with no accumulated reserves. In many cases, therefore, no benefits could be paid to workers unemployed as the result of these shutdowns. Sometimes the funds were sufficient to pay one or two weeks' benefit, and only in rare cases have those who have remained unemployed drawn benefits for two or more seasons.

The Wisconsin law offers even less protection to workers in cases in which a firm discontinues business. There the law specifically provides that the employer may withdraw the balance of his insurance fund six months after going out of business, and in no case is an employer responsible for unemployment continuing six months or more after the lay-off. The maximum benefits an ex-employee could hope to draw would be for 10 weeks, or, if his rate of benefit exceeds $7.50 a week, a maximum of $75. Such a benefit would be entirely inadequate in face of the longer periods of unemployment which often follow discharge or lay-off during a depression period. There seems to be no way under a system of individual reserves to insure all workers until they can find other jobs, since it is precisely those firms which are weakest and unable to accumulate reserves which are most likely to close down.

Not only are the workers soon left stranded in case an employer closes down his plant; but even if the plant continues in business, the benefits the worker receives offset only a small part of his wage loss due to unemployment. Table I, which gives employment and benefit data for five of the largest and most stable firms in the Chicago clothing market, indicates the amount of protection offered to workers in such seasonal industries. If the more unstable firms had been included in the table, the data would show even less satisfactory protection for the workers.

It should be noted that the rate of contribution under the Chicago

[9] For a discussion of the problem of readjustment of one group of these workers, see R. J. Myers, "Occupational Readjustment of Displaced Skilled Workers," *Journal of Political Economy*, August, 1929.

plan is more than double the Wisconsin rate, and that hence either the amount of benefit per week or the number of weeks of benefit is proportionately greater than could be expected in similar circumstances under the Wisconsin law. The firm average given in the table conceals variation in number of weeks of employment in the shops within the firms. Thus the pants-shop employees of one clothing firm averaged only 13.9 weeks of full-time employment in 1933, while the firm aver-

TABLE I

EMPLOYMENT AND BENEFIT DATA FOR FIVE CHICAGO FIRMS, 1929–33*

	No. of Weeks of Full-Time Employment per Year		No. of Weeks of Benefit Paid	Percentage of Weeks of Unemployment for Which Benefits Were Paid	
	Firm Average	Cutters		Firm Average	Cutters
Firm 1, 1929	40.7	44.0	5.5	48.7	68.8
1933	24.6	27.0	3.0	11.0	12.0
Firm 2, 1929	37.0	36.8	5.5	36.7	36.2
1933	21.2	17.8	2.5	8.0	7.3
Firm 3, 1929	35.4	39.7	4.5	27.1	36.6
1933	19.2	17.8	2.5	7.6	7.3
Firm 4, 1929	37.2	39.6	4.5	30.4	36.3
1933	18.9	18.2	3.0	9.1	8.9
Firm 5, 1929	36.6	38.9	4.5	29.2	34.4
1933	23.3	21.5	3.0	10.5	9.8

* Data computed from information in the files of Unemployment Insurance Funds, Men's Clothing Industry, Chicago Market.

age was 21.2 weeks. These pants-shop workers received benefits for only 6.6 per cent of the time they lost. When it is remembered that the rate of benefit is only 30 per cent of weekly wages, the scanty protection afforded is apparent. The plan is in effect one of forced subsidized savings, or a 3 per cent increase in wages payable at the end of the season. It has the merit of giving to each worker at the beginning of a period of unemployment a small cash sum with which to pay bills and establish credit.

The benefits paid out each year, though not large in terms of protection afforded the workers, were sufficient to prevent the accumula-

tion of reserves. In other words, no clothing manufacturers were able to stabilize their employment to the point which would enable them to build up the maximum reserves and then discontinue contributions to the fund. In fact, since the employer's contribution was calculated as a percentage of his pay-roll, the more weeks per year the employee worked, the more the employer had to contribute to unemployment insurance! This is contrary to the expectation and hope of the sponsors of the system. It is now obvious that if, as in the clothing industry, the volume of unemployment is large enough to keep the reserves of an employer exhausted, or below the maximum, he has no incentive to reduce the volume of unemployment. Only in those cases in which the industry's employment record is already fairly good, and it is possible to avoid payments by further stability to the point of discontinuance of payments, does the individual employee reserve system act as any incentive to regularization. The more employment offered, the larger the wage bill and the larger the unemployment reserves payments. The 2 per cent tax in the Wisconsin law would thus add to the costs of employers who came under the law. It will be a mild incentive toward stability only in those cases in which employers have hopes of accumulating reserves and discontinuing payments. A more generally effective incentive to check unemployment might be the Ohio plan of requiring lower rates of contribution from employers with better employment records. Employers who operate their plants irregularly would pay more than those who give their employees stable employment. If the employment record is improved, the employer would benefit by a lower rate.

In summary, individual employer unemployment reserves provide very little protection to workers in those industries, such as the men's clothing industry, which offer the most irregular employment. Furthermore, in such industries the insurance system does not necessarily offer any incentive to the employers to stabilize employment.

GEORGE AND ELEANOR WHEELER

Washington, D.C.

BOOK REVIEWS

The Treatment of Poverty in Cambridgeshire, 1597–1834. By E. M. HAMPSON. Cambridge: University Press; New York: Macmillan Co., 1934. Pp. xx+308. $5.25.

This is really a study of destitution rather than of poverty, and supplements the excellent work of the Webbs, Dr. Dorothy Marshall, and Mrs. M. Dorothy George, in throwing new light on various aspects of poor-law history before the Report of the Royal Commission and the so-called "new Poor Law of 1834."

There are always two sides from which social legislation, particularly the poor laws, must be studied. First, there are questions of the adequacy or suitability of the statutory provisions; and second, there is the administrative process or procedure. And this second point is important when the statutes are left to be administered by numerous local authorities (in this case, the 15,000 parishes of England). Miss Hampson has examined in detail the way in which the poor laws were actually administered by the parish authorities within the limits of the County of Cambridgeshire, and how these laws provided or failed to provide for the men, women, and children who passed before the local overseers of the poor or the county magistrates. She finds new evidence that the laws "produced effects undreamed of by their framers"; and she is undoubtedly right in thinking that "probably no social service played so large a part as did the Poor Law in moulding the constitution of the authorities which administered it." In turn, of course, the Poor Law was itself molded by the same authorities.

Miss Hampson's study of "obscure annals mouldering in the parish chests of the county" affords evidence of the large part played by the settlement law "directly or indirectly in the life of the poorer section of the community." Here is the story of the prolonged agony of the settlement and removal laws, which unfortunately are not yet portion and parcel of the dreadful past, and even today (and even in America) still make it a statutory duty of poor-law officials to drag men, women, and children back to another parish, township, or county legally responsible for their support. It is good to find protests in the seventeenth century against this wasteful, cruel, and costly system. "If a

right course be taken," Sir Josiah Child, the economist, was advising in 1669, local authorities would "invent no strategems" to get people out of the locality, but would, instead, bring them in and be prepared to employ "all that come to them, not inquiring what nation, much less what parish they are of." It is interesting that approximately two-thirds of the existing parish documents deal with pauper removals "across the chess-board of Cambridgeshire." The cost of removals was not negligible; a single removal usually cost several pounds, and in the years between 1660 and 1831 there were 945 appeals against removal orders before the Cambridgeshire Quarter Sessions. But while she pays due attention to the financial side of the question, and also takes note of the extent to which labor was rendered immobile, Miss Hampson emphasizes particularly "the repressive element which the policy necessarily fostered in the attitude to poverty" and this effect, she thinks, cannot easily be exaggerated.

Certainly the settlement provisions absorbed the attention of the parish authorities after 1662, for they were not only involved in harsh removal procedures but in endless litigation. And there was a "concentration of attention upon this point to the detriment of interest in improved modes of relief, especially in the more remote parishes. Needless expense was entailed, fraud and casual employment were encouraged, the ties of family life were loosened at every point and, up to 1795, callous brutality, frequently resulting in actual death, marked the attitude towards sick (and especially pregnant) persons." One case after another tells the story of the cruelty of the settlement laws as they were administered.

There is some interesting material on the work of justices out of sessions. An examination of the signatories to pauper removal warrants of the eighteenth century indicated that individual justices carried on over wide areas. "Paupers, refused aid by the overseers, often tramped for miles to secure an order for relief from some compliant magistrate." A typical case is John Day, "a lame and very aged man having but one hand," who was refused aid by the overseers in 1700, but who was later allowed two shillings a week after an order had been issued by the county magistrate.

If any present-day American is inclined to reject the last new method of providing work-relief or any other kind of relief, he would do well to read this scholarly and carefully documented history of man's inhumanity to man over a period beginning more than three centuries ago.

It is interesting that Miss Hampson misunderstands the American

poor laws. Referring to the Scottish policy of refusal of relief to the able-bodied, she comments that "Scotland, it is true, never supplemented wages, but distressed Scots, like twentieth-century Americans, were driven literally to beg their bread or to steal it." Of course, the unemployed are clearly included among the statutory indigent of America, and always have been eligible for relief under the so-called "pauper laws" of the various states.

EDITH ABBOTT

University of Chicago

The Changing Structure of American Banking. By R. W. GOLDSCHMIDT. London: George Routledge & Sons, Ltd., 1933. Pp. ix+318. 12*s*. 6*d*.

From the detached position of a European student, Dr. Goldschmidt has written an excellent book which should be studied carefully by all who are interested in the reform of the American commercial banking system. It is his thesis that 1933 brought to an end a major epoch in American banking, but he is doubtful whether the present temper of the American people is such as to make possible the type of reform which will actually cure past evils without setting the stage for new ones.

After outlining the causes of weakness in our banking system (p. 241), he makes numerous suggestions for reform and offers pertinent criticisms of recent legislation. He believes that the Federal Reserve Board has been burdened with too many duties and that the restrictions on security loans in the Banking Act of 1933 may be of doubtful effectiveness. He opposes the guaranty of bank deposits and asserts that the method employed to separate commercial and investment banking may "cripple the investment banking machinery in the years to come." He is also of the opinion that it will be difficult to regulate interest rates on time deposits successfully, unless the banking system is fully socialized. Finally, the government should not venture further into the banking field through its various agencies in competition with privately owned banks. "A hybrid system will not work and will probably develop into a wholly socialized one as time goes on" (p. 284).

It is doubtful, however, whether Goldschmidt's suggestion that more freedom of action be given the individual reserve banks would work as well as he believes. It is the reviewer's opinion that the American bank-

ing system is sadly in need of leadership and control. It may be that we shall be required to remove the management of monetary and banking policy from the field of choice and bind it hand and foot in a legislative strait-jacket. But if we are not yet ready to do this we must centralize control, and the Federal Reserve Board is the most appropriate agency we possess for this purpose. Goldschmidt is correct when he asserts that the Treasury is not the proper place to centralize leadership. To leave it to twelve reserve banks, however, means lack of unity, confusion, and probably endless dissension.

Guaranty of bank deposits is open to attack, it is true. But it was necessary to restore confidence in the banks. How else could it have been done more quickly? Possibly a revision of our banking system along the lines suggested by the author will help greatly, but we were facing an emergency in March, 1933. Another wave of bank failures would have been disastrous.

CHARLES S. TIPPETTS

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Enquête sur les conditions de vie des familles nombreuses en Belgique. Préface par M. ERNEST MAHAIM; Analyse des Results par MLLE AIMÉE RACINE; Conclusions Sociologiques par M. EUGÈNE DUPRÉEL. Liège: Georges Thone, 1933. Pp. 174.

This study of the large family in Belgium was undertaken under the auspices of the Belgian Committee for the Scientific Study of Population Problems. The primary data cover a period from April, 1930, to January, 1933, and consist of information from questionnaires dealing with the economic and social status of 192 families in which there were five or more living children. Most of the cases are from the working class group, although a few represent agricultural families and the petit-bourgeoisie.

The factual data are presented in Parts I and II. Here one finds a picture of the manner of life of the large family—the hard work and self-denial of conscientious parents, the shiftlessness and degradation of others, and in all cases, the privations of the children. It is the familiar picture of the life of the poor. It is not, however, as a record of these sufferings that the study has significance. Large families, the authors show, fall into two categories, those in which a large number of births is involuntary, the result of ignorance and indifference, and those in which the responsibility has been undertaken deliberately. It is the latter group which presents a phenomenon of special interest

to the sociologist. In Part II, M. Eugène Dupréel presents most interestingly the sociological conclusions which the study suggests.

In modern society, characterized as it is by the practice of family limitation, the voluntarily large family forms a distinct minority group, identified by reason of its special ideals and problems, proud of its divergence from the common type, consciously superior. In Belgium it is already expressing itself in group action through the *Ligue des familles nombreuses*, an organization which fosters the ideals shared by its members, and seeks to mitigate the disadvantages of the large family by such devices as child allowances, reduction of school fees, special railway rates, and adequate housing accomodations. As sociologists, the investigators who carried on this study are primarily interested in the psychological reactions of this minority group, which, in a world where the ideals of individualism and self-expression are aggressively pursued, sets itself up to emulate the virtues of self-sacrifice, co-operation, industry, and frugality.

This volume represents only a first step, a preliminary survey, in more extensive researches. It claims only to have established the fact of the existence of the group and to have revealed certain of its distinguishing characteristics. In contrast to the low morale of the involuntarily large families, those which are large by choice display more than the ordinary amount of energy, ingenuity, optimism, and devotion. In practically every instance recorded in this group the parents are motivated by strong religious motives; most often they are devout Roman Catholics, but a few, notably communists, are influenced by a social ideal.

The most striking feature in family relationships is the rôle of the mother. It is upon her ability as a manager and her qualities of character that the success of the venture depends. She must provide for a large number of children out of the same resources which among her neighbors are used for one or two. It is her spirit which determines the morale of the home. This preponderance of the mother, as M. Dupréel points out, is likely to be increased by arrangements such as children's allowances, which, by relieving the father of a share of the burden of support, tend further to diminish his responsibility.

But although it is the mother who occupies the strategic position, it appears that it is the father who is the active advocate of the large family. The movement, if so it may be called, is a man's movement. Here M. Dupréel's explanation, for once, has an academic ring. Men, he says, are typically the innovators and women the conservative element in social life, and so it is to be expected that men will be the

leaders in a movement which departs so radically as does this from the accepted norm. There is, no doubt, some weight to this suggestion. One may draw a parallel from the Orient, where birth control is a man's, rather than a woman's, movement. But surely this is not all of the matter. Most of the data collected by the investigators were gathered from the men. The women were reported as being less vocal, though no less loyal and enthusiastic, than their husbands. One would like to read the results of a more careful inquiry into the attitudes of these women, and also of the children. With regard to the latter, we are told that some of them expressly stated that they did not wish to have large families in their turn. One looks forward to the further monographs which these competent investigators have promised us, in which these and other complex aspects of this most interesting social group will be elaborated.

HELEN FISHER HOHMAN

Evanston, Illinois

Women Who Work. By GRACE HUTCHINS. New York: International Publishers Co., Inc., 1934. Pp. 285. $2.00.

This book is one of several volumes dealing with labor conditions in the United States prepared under the direction of the Labor Research Association. Like the other books in the series, it is frankly communistic in tone and written for those readers whose interest and preparation is non-technical.

Books dealing with the "wrongs of working women," once so familiar to the student of labor problems, became quite outmoded in the period of economic exuberance following the war. Five years of depression, accompanied by the demoralization of industrial standards, have, however, restored their former interest and importance. Miss Hutchins' evidence, so well presented and so carefully documented, should be sufficient to dispel the last vapors of complacency in which the American public steeped itself during the years of prosperity. It leaves no room for doubt that the same evils which existed in 1914 still flourish, and with unabated violence. Long hours, hard work, low pay, the double burden of home and factory work, ill health and debility are still the lot of women workers in the factory and on the farm. And to these the recent years have added unemployment. The author does not rely upon the statements of radical propagandists to prove the case. She has patiently compiled the facts from the reports of state industrial commissions, the investigations of social scientists, the

testimony of social workers, the official statements of the A. F. of L., and the daily and weekly press. The presentation of the evidence would, indeed, be more impressive to many readers if the footnote references were incorporated in the text instead of being segregated at the end of the volume, for it is not by communistic critics, but "out of their own mouths," that capitalistic society stands condemned for the conditions under which its women work.

The parallel with Russian conditions runs throughout, but on this point one might wish for a more detailed exposition. Although a chapter is devoted to "How It Is in the U.S.S.R.," the treatment of the Russian experience is disappointing. There is statement rather than analysis, enthusiasm rather than penetration. The comparison of Russian with American conditions does, however, serve to show that wherever women work at industrial occupations, be it under capitalism or under communism, special arrangements are necessary if their health and well-being are to be protected. The Soviet government has approached the problem from two angles. By providing communally for certain of the needs formerly supplied within the family—e.g., the preparation of food and the care of children—it has relieved women of many domestic duties. It has also undertaken the task of regulating conditions of work in industrial employments. The devices adopted are familiar ones—regulation of hours of work, minimum wages, maternity care, sanitation, good lighting, proper seating, protection against the health hazards of industry. These are devices which have long been urged by factory reformers in our own and other countries. Since the nineties, devoted men and women have been accumulating the scientific data to support the humanitarian appeal for decent conditions of work and adequate pay for women workers. Some progress has been made, but as Miss Hutchins shows, it has been slow and halting. To many persons of less radical temper than Miss Hutchins, the impetus given to social legislation by the Roosevelt policies offers genuine encouragement. To her, however, it is only the first explicit step toward fascism.

HELEN FISHER HOHMAN

Evanston, Illinois

The Unemployed Citizens' League of Seattle. By ARTHUR HILLMAN. Seattle: University of Washington Press, 1934. Pp. vii+89. $0.50.

Before 1929, the question was being publicly asked, whether, the growing industrialism that was daily becoming more complicated did

not make it much simpler to supply the simpler variety of household needs by growing or making them on a part-time basis with industrial employment. After 1929, the alternative was in many quarters no longer a question of convenience but dire necessity. Groups came into existence all over the country to make and exchange such things as their individual members could make almost bare handed. With the advent of the Roosevelt Administration, certain aspects of this development received official standing, notably through the Tennessee Valley Administration. In the case of the agencies normally organized to relieve distress, a self-help movement developed somewhat akin to the exchange system but with different intentions. It did not contemplate a new order within the old; it merely sought to keep body and soul of its constituents together. In this field the Unemployed Citizens' League of Seattle, organized in the summer of 1931, claims to have been first, even if it does not claim any blood relationship to the many organizations that followed it in time.

The League had a considerable program, including public employment, unemployment insurance, and public relief, but self-help was within its own immediate competence. It exchanged labor for produce at nearby farms, cut wood on private wood-lots, and exchanged the wood for fruit, maintained a barber shop, tailor shop, shoe repair shop, a garage. Things it could not get through work it "chiseled." Each member was expected to put in at least two days a week toward these activities, but could draw on the proceeds according to needs.

The locals of the League, numbering twenty-two at one time, were scattered throughout the city and each became a sort of neighborhood center for dances and entertainment as well as commissary for the distribution of food and clothing. The members were not grizzly habitués of suburban jungles but staunch standpatters, established householders, flag wavers . . . ." (p. 193).

Troubles began to stalk the League soon after it was organized. The city put a Mayor's Commission for Improved Employment into the field to co-ordinate employment opportunities, but also to solicit food and clothing. The Commission had a paid staff financed out of moneys obtained from the Community Fund. It opened depots of its own but also used the commissaries of the League. The paid staff wanted to proceed professionally, but the League looked upon social work as a form of espionage. As a concession to the League, the Commission used League members as "visitors." Presently the county commissioners, who had been contributing considerable sums to the city relief

burden, found themselves confronted with an election in the not-distant future and proceeded to take over the entire apparatus as a public agency. The League protested. But the rise of a state-wide administration of relief on non-political lines, working in close co-operation with the Federal Emergency Relief Administration subsequently organized, closed the issue.

While these troubles were besetting the League from without, differences were developing from within. Some wanted to expand the self-help idea into a new order along syndicalist lines. Some wanted to hasten the day of communism. Occasionally direct action was not only preached but practiced, especially in eviction cases. But worst of all, the League could not escape the politicians who began to insinuate themselves into its problems, nor could the League entirely neglect the politicians who were holding the purse strings. In the municipal election in the spring of 1932, it indorsed and helped into office several candidates, including the mayor. In the national, state, and county election in the fall of the same year it did likewise, electing eight of its own members to the state legislature.

These victories, instead of invigorating, devitalized the League. Some of the politicians found new faiths after election; others remained impotent. Those who had brought the organization into existence as an emergency measure withdrew to escape the ravages of the politicians. Only the radicals remained, protesting ideologically against the local relief administration.

In the depression of the thirties, a hundred years ago, the workers organized producers' co-operatives as a form of relief. In the current depression, the workers organized primarily to gather in what the more prolific system, developed since then, could not dispose of. This the automobile and the improved highways made possible. But only within limits. It was necessary to organize a machine, as gigantic as the industrial machine itself, in the form of the Federal Emergency Relief Administration, to make it work.

E. B. MITTELMAN

University of Oregon

Ten Thousand Out of Work. By EWAN CLAGUE and WEBSTER POWELL. Philadelphia: University of Pennsylvania Press, 1933. Pp. xvii+188. $2.00.

In this publication, the third of a series of studies growing out of unemployment relief in Philadelphia, the authors set out certain ques-

tions to which some answer is sought. Among these are: What are the reasons for the unemployment of the unemployed? Why are they the particular ones to experience this disaster? Being unemployed, why are they obliged to appeal for help?

In their quest, schedules were filled out for 8,722 persons employed at made-work, and for 1,439 persons applying for work relief. The two studies are separately reported, forming Parts I and II of this volume, but are interrelated at different points. Those desiring condensed findings and conclusions will appreciate the summaries at the end of each chapter and the conclusions which end each Part.

However, the report is well worth more detailed attention. Both authors are quick to point out certain biases in their source material and refrain from drawing conclusions beyond the scope of their survey. If there are yet those who believe that the worker himself is primarily responsible for his unemployment they would do well to ponder certain tables, and the discussion of them, particularly in Part I. Mr. Clague found that the vast majority of these men had been laid off for lack of work and that "Over one-half of the whites and nearly one-third of the negroes had been on the same job for five years or longer, while service records of 10, 20, 30 and up to 45 years, were not uncommon." At the same time, he recognizes that these workers were somewhat below average in educational attainments.

Mr. Powell centers his attention upon the financial resources of the families with whom he deals and how these resources were used in tiding the family over the unemployment period. He found that somewhat less than half the white workers and about half the colored workers had savings at the beginning, the median for the first-named group being $204 and for the latter only $86. (Preceding tables on wages should be read in connection with these differences.) Bank failures and severe illness "sapped the strength of many a stalwart savings account."

The great bulk of the insurance carried by these families was of the industrial type and of little value during unemployment. Home ownership also was of small value as an emergency asset. The contribution made by the landlord is evident as one reads that slightly over 63 per cent of the white families, and 66 per cent of the colored, were in arrears in rent payment.

The appendixes throw more light on various aspects of the survey, including the reliability of the data.

RUTH M. KELLOGG

New York City

Women and Wealth: A Study of the Economic Status of American Women. By MARY SYDNEY BRANCH. Chicago: University of Chicago Press, 1934. Pp. xvii+153. $2.00.

In making this study, the third under the Chi Omega Service Fund, the author has assembled statistical and other data in an attempt to portray the economic status of women in the United States. Her report is presented under the chapter headings of women as taxpayers, as owners of property, as gainfully occupied workers, and as managers of family income. Wisconsin and Cook County, Illinois, data have been used extensively in the fore part of the report, although other states are represented in certain tables. Census data and reports of the Women's Bureau, U.S. Department of Labor, are foundation material for much of the latter part.

The author presents her material in objective manner and not in the slightest as a "feminist" appeal. She ends with the statement: "Possibly it is not far-fetched to suggest that women, because they own and control so large a part of the country's wealth and income, could, if they chose, so change the manner of using that wealth and income as to contribute toward the building of a better social and economic order." A statistical appendix and a bibliography conclude the report.

RUTH M. KELLOGG

New York City

A History of Greek Public Finance. Vol. I. By A. M. ANDREADES. Revised and enlarged edition translated by CARROLL N. BROWN. Cambridge: Harvard University Press, 1933. Pp. xx+412. $6.00.

This work is characterized by the unusual qualifications of its author. Professor Andreades is a specialist in financial history, the author of the well-known *History of the Bank of England*, and by his subsequent studies, teaching, and participation in public affairs he has acquired a familiarity with the experiences in finance of many countries and a critical point of view based thereon not ordinarily possessed by men who write about ancient Greek affairs. As a Greek and professor of his subject in the University of Athens, he is in position to bring to bear on the interpretation of financial practice in ancient Greece a judgment controlled by knowledge of what is possible and actual in a world in which his own world has its roots. His reading in the general literature of public finance, which is certainly wide and apparently exact, has enabled him to relate to the specialized litera-

ture of his theme, which he knows remarkably well, many ideas and suggestions which may easily escape the attention of scholars primarily interested in the ancient sources of our knowledge. Thus equipped he has produced a work which can be read with profit by two groups of students—those whom he calls archaeologists (Boeckh would have said philologists) and those economists whose conception of public finance as a field of study includes its history.

The book under review was first issued in Athens in 1918. A second edition appeared ten years later. This was translated into German in 1931. Now it appears in English, with revisions incorporated in the German edition and some additional material suggested by the author. Both the translator and the printer have done their work excellently. The sponsor of the English translation is the Harvard Economic Society, on whose behalf Professor Charles J. Bullock has written a concise Introduction. The book is the first of a series of four volumes to be devoted to Greek finance from Homeric times to the present day. Part of the second, dealing with Alexander and the Hellenistic Age, has already appeared (1930); the third is to cover the Byzantine Empire and the epoch of the Turks and Venetians (for which Andreades has published many preliminary studies), and the fourth is to take up modern Greece from 1821 to 1919. It will be interesting to observe to what extent persistent practices and ideas give historical continuity within the bounds thus set.

Volume I shows the marks of its growth. It contains some repetitions, some rather inorganic expansions of bibliography, many appendixes, and relegates to footnotes materials which might well have been worked into the text. The citation of the Attic inscriptions by the first, instead of by the second, much improved, edition of the *Corpus* is a scar that should have been removed. The main subdivisions of the volume are as follows: "Homeric Public Finance," "The Public Finance of the Spartans," "Public Finance of the Greek World in Classical Times," and the "Public Economy of the Athenians." Of these the third contains a good analysis of the *Oeconomica* attributed to Aristotle and an interesting comparison of the financial administration of the Persian kings and satraps with that of the Turkish Pashas, while to the fourth is appended an appreciation of Xenophon's treatise *On Revenues*.

In a work of such wide scope, in which a vast literature, ancient and modern, is summarized and criticized, slips are inevitable. I do not know why a *third* edition of Beloch's *Griechische Geschichte* is referred

to (p. 37, n. 4). It has yet to be proved that the Superintendent of Springs (whose importance the American excavations in the Agora have set in strong relief), the Committee on Theoric Funds, and the Treasurer of Military Funds, served for a four-year term (p. 248, n. 3, *et passim*). The evidence, which is practically conclusive for the first of these extraordinary magistracies, favors an annual term "from Panathenaea to Penathenaea." The scheme of fines for failure to perform public services described in Aristotle's *Constitution of the Athenians*, Sec. 4, is attributed to Solon, instead of to Draco (p. 275, n. 2). Seeing that Andreades rightly denies the authenticity of the Draconian constitution it has a place only in the history of ideas. It was Antipater, not Antigonus, who provided for Athenian settlements in Thrace in 321 B.C. (p. 287, n. 9; cf. p. 345, n. 2, where the error is not repeated). There is a wrong reference on page 345, n. 1, to the *Memorabilia* of Xenophon: it should be the *Oeconomicus*. It is not accurate to say that "a simple decree of the people was enough for disposing of the surpluses" accumulated at Athens (p. 368): Pericles imposed other safeguards, as Andreades himself recognizes elsewhere (p. 320).

Such slips as these affect only slightly the merits of Andreades' arguments and interpretations; and they seem not to be frequent. They are noted as matters which should be included in *Corrigenda* in later volumes of the work. In the same category I should enter a few matters of some importance on which new evidence has upset Andreades' conclusions. The levy on capital at Athens (*eisphora*) was not an innovation of 428 B.C. (pp. 333 f.). The famous decrees of Kallias, in which the system is mentioned as already in existence and protected against abuse, are now dated definitely in the same day of the year 434 B.C. (Wade-Gery, *J.H.S.* (1931), pp. 57 ff.; Kolbe, *Sitz. Ak. Berlin* (1933), pp. 154 ff.; Meritt, *A.J.P.* (1934), pp. 263 ff.). The tribute levied by the Athenians on their allies was tripled, instead of doubled, in 425 B.C. (pp. 307 ff.). Whether the total assessment recorded in *I.G.*[2] I, 63, line 212 exceeded somewhat 960 talents or 1,460 talents (it must have been one or the other) has been a subject of controversy for some time. The question may now be regarded as settled in favor of the larger figure by the recent work of Meritt and West on *The Athenian Assessment of 425 B.C.* (University of Michigan Studies, XXXIII, 1934).[1] If the assessment was reduced in 421 B.C., as seems likely, it was raised again in 417; and it was the yield of this crushing assessment which the Athenians sought to increase by substituting for it in 414

[1] See p. 264 f., *infra*., of this number.—THE EDITORS.

B.C. a 5 per cent tax on imperial commerce. This new *datum* serves but to confirm Andreades' conclusion that the financial policy of Cleon involved an outrageous exploitation of the allies of Athens. Andreades is severely critical of the Athenian financiers of the fourth century (notably Eubulus) because of their sacrifice of military finance to social finance. Athens was, he claims, the first state to make social betterment a primary object of public finance, and from her experience in this matter he thinks that lessons valid today may be drawn. It is a question of striking a balance, and this Andreades aims at doing. He fails to appreciate one point of considerable importance. Pericles saw the truth that great wars, given Greek conditions, could be waged successfully only by "wise policy and an accumulation of ready money." Under this régime a war reserve was collected on the Acropolis which approximated the total national wealth. This was a remarkable achievement. Without the tribute of the Empire it was unthinkable. Neither Pericles nor the fourth-century financiers could create a war fund of any magnitude from the surpluses of the domestic revenues. The Athenian contemporaries of Philip of Macedon, with no tribute to draw on, had only the small surpluses of home income to reckon with. It may not have mattered greatly whether they were spent for festivals or for soldiers. There was, therefore, much to be said for a policy of peace such as Eubulus advocated, and this was probably impracticable politically without a buoyant theoric fund.

W. S. FERGUSON

Harvard University

The Athenian Assessment of 425 B.C. By BENJAMIN DEAN MERITT and ALLEN BROWN WEST. (University of Michigan Studies, Humanistic Series, Vol. XXXIII.) Ann Arbor: University of Michigan Press, 1934. Pp. xiv+112. $2.50.

This work consists of a new edition and study of an important Athenian inscription, of such a nature that its details can hardly be checked and appreciated except by those who have specialized in similar work. Yet it contributes one fact that deserves to be noticed by all who take the slightest interest in the economic history of Greece and Athenian state finances. It fixes the total amount of the highest tribute ever levied by Athens upon her Empire. This is accomplished in the following manner: Though the inscription is in a sad state with many blanks between its forty-three fragments, it is possible to read in the last line the greater part of the symbols giving

the sum total of the levy. It is of little importance that some symbols for a few odd talents and drachmas have been lost at the end. It is more serious that the first symbol in the sum is missing. Yet one glance will show that it must stand for either 500 or 1000 talents and that the sum total, as far as it can be read, is either 960 or 1460 talents. Though very many of the items in the list giving the details of the levy have been lost, yet, by means of what has been preserved combined with information from other sources, the editors have been able to demonstrate that the total levy was more than 960 talents and that therefore 1460 is the correct figure. That the wish was not the father to the conclusion is demonstrated by the fact that the editors themselves once considered this sum too high and that one of them argued the point at some length in an article a few years ago. The edition is of the same high standard as all the epigraphical studies of the two editors. It is supplied with commentaries, translation, indexes, and illustrations.

JAKOB A. O. LARSEN

University of Chicago

Venetian Ships and Shipbuilders of the Renaissance. By FREDERIC CHAPIN LANE. Baltimore: Johns Hopkins Press, 1934. Pp. ix+285. $3.50.

The author of this expanded doctoral dissertation has endeavored to present a picture of the changes that took place in the Venetian shipbuilding industry in the fifteenth and sixteenth centuries. Such a study obviously has great importance for the larger question of the nature and progress of the decline of Venice as a naval and commercial power.

A patient and prolonged use of Venetian archives is evidenced on almost every page. Most of the material, outside of that previously published, was found in the State Archives (the Frari) in Venice; the regulations of the Arsenal, the municipal shipyard, were particularly valuable.

The first two chapters present the story of the changes in naval architecture that took place in the fifteenth century, which were more considerable than is generally realized. The round ship, with improvements in design of hull and rigging, displaced the galley for both commercial and military purposes. By 1500 Venetian round ships for war were often of 1,500 tons, though commercial ships were usually under 1,000 tons. Chapters iii and iv discuss the personnel of the

Venetian shipbuilding industry: the famous shipwrights, Nicolò the Greek, Bressan, Rosso, Vettor Fausto, a professor of Greek who built a successful quinquereme on classical lines and displayed a general ingenuity in improving existing models. The shipbuilders' guilds, largely religious and social in nature, with chapels, cemeteries, and altars of their own, and elaborate old-age pension provisions, came increasingly under the influence of the Arsenal before the seventeenth century. There follows, chapters v–vii, a study of the mechanics of shipbuilding and the course of private enterprise in building merchant vessels. Privately built merchant vessels declined in number during the depression of the end of the fifteenth century: the amount of capital needed to build a 400-ton or larger ship was too great for an individual contractor to be willing to undertake. By the middle of the sixteenth century even smaller merchant ships—of 120 to 140 tons—had to be bought abroad, though such purchase was in open violation of Venetian law. Heavy governmental subsidies failed to revive private shipbuilding industry. The pump would not prime. The government had to go deeper into business, and the Arsenal became virtually *the* shipbuilding industry of Venice. This period of governmental monopoly of the industry synchronizes with the period of rapid decline. The following chapters, viii–xi, on the Arsenal, its growth, management, craftsmen (*arsenalotti*) and discipline seem to the reviewer the best in the book from the point of view of liveliness and readability yet without departing from documentary evidence. The author must have enjoyed piecing together the isolated details he found in the archives of the Arsenal. Tools and wood had a way of disappearing from the Arsenal, inspectors were posted at all doors; workmen would fail to turn up except on paydays; more bosses had to be hired, and even then inspection of the work was insufficient to assure a good job of caulking or carpentry. This all has a familiar sound. The last chapter (xii) on timber supplies is, in a sense, the most revealing of all. Briefly put the evidence is conclusive that from the middle of the fifteenth century the near and available supplies of oak, larch, and fir were being irreparably depleted. Attempts at conservation, acquisition of new forests, "banning," planting, were fruitless. By the middle of the sixteenth century, at least, most of the oak used for privately built ships was bought outside Venetian territory. Dutch ships could be built cheaper with Baltic woods. There are ten tables and seven appendixes containing data on numbers of ships built, measurements and capacities, wages of employees, an excursus on money values, a

favorable analysis of the disputed deathbed "oration" of Doge Mocenigo (1423), freight rates, costs of ships, etc.

Throughout the book the author is careful to avoid drawing any definite conclusions as to the larger aspects of the nature and extent of the decline of Venetian commerce in the sixteenth century. His work is not the less valuable because it is possible to draw conclusions from his figures which are substantially at variance with his views expressed elsewhere (*Amer. Hist. Rev.*, XXXVIII [January, 1933], 219) when he says: "When viewed as a whole the Venetian merchant marine employed in international commerce appears not to have declined, but actually to have grown in cargo-carrying capacity during the sixteenth century." Considering the fact that the population of Venice virtually doubled between 1450 and 1550; that the capacity of its round ships declined from 25,848 tons in 1499, a period of depression to 18,000 in 1558 (Table F), whereas the carrying capacity of Portuguese, Dutch, and English merchant marines probably, in the aggregate, tripled in the period; and that the trading centers of Europe moved westward in this same period, it is hard to see how Venetian trade can be regarded as even approaching stability. When the rest of Europe was making great strides forward, Venice may not have gone noticeably backward absolutely but she failed to keep pace with her rivals.

Dr. Lane's book is so full of interesting and significant facts as to seem at times confused. One feels occasionally that the confusion might have been avoided by better organization, but a second reading often lightens the impression of confusion. The typography is excellent; a few minor errors have escaped the proofreader. The illustrations are often from contemporary manuscripts. A map of the Veneto would have been helpful, particularly for the chapter on timber.

S. H. THOMSON

University of Chicago

The Principles and Problems of Federal Finance. By BHALCHANDRA P. ADARKAR. London: P. S. King & Son, Ltd., 1933. Pp. xviii+301. 12*s.* 6d.

Students of government finance in the United States are likely to be increasingly concerned about the fiscal relations between our federal government and the states. The division of functions and expenditure responsibilities is becoming increasingly incompatible with the division

of revenue sources. Failing fundamental change in our tax system, we must face either an unhealthy extension of federal responsibilities or wholesale resort by the states to levies of a most objectionable and regressive character. Sound reorganization of our fiscal system would appear to be possible only through close co-ordination of federal and state taxation, especially with respect to levies upon personal income and inheritance.

In these circumstances, American students should welcome a concise, comparative study of the financial problems of federal states—especially in view of the meagerness of the literature in English on *Finanzausgleich*. Professor Adarkar's treatise grows out of his interest in current problems of Indian finance; but he devotes to the case of India only as much attention as is appropriate (and to America, perhaps more than is appropriate) in a balanced comparative study. Thus, the book is likely to prove as useful in this country as in India—and very useful in both.

The value of the book lies in its description and criticism of the financial systems and financial constitutions of the leading federations. Separate chapters are devoted to the United States, Germany, Switzerland, Canada, Australia, South Africa, and India. To American students, the chapter on the United States will seem least well done; but its shortcomings are largely offset by the frequent comment, in other parts of the volume, on the American system. It is unfortunate, however, that the author should have overlooked the credit provisions of our federal estates tax; although the sums involved are small, this may prove to be one of the most important post-war developments in American finance. On the whole, however, these seven chapters are well done—as are the comparative and descriptive sections which make up the greater part of other chapters.

The high level of critical comment running through previous chapters leads the reader to expect much from the concluding section. Part III, however, is disappointing. Many empty concepts and generalizations are judiciously deflated (e.g., "taxable capacity," "economic allegiance"); few if any important considerations are neglected; and the author displays both erudition in theory and practical judgment. But these concluding chapters simply do not hang together or issue in pointed discussion of the basic problems of the book. The sections on "the theory of transference" (with its rather pointless defense, against Professor Robbins, of the marginal-utility approach), on "the first principles," on "the optimum of public finance," and on the theory of public borrowing—all these are unimpressive in themselves and not

closely relevant to anything that precedes or follows. The early emphasis on transference, taxable capacity, and utility principles seems intended to support the case for generous federal subsidies. Having gotten this out of his system, however, the author proceeds to an extreme emphasis upon the importance of fiscal independence or autonomy for provincial governments. Here he argues for separation of sources, with a minimum of marginal adjustment through one-sided transfers. At other points, equal emphasis is placed upon the necessity of administrative centralization, especially for income and inheritance taxation. The argument, in detail, is competent and convincing throughout; but the author nowhere faces squarely the conflict of the major considerations. Each of them appears to be given preference in turn; and the summary discussion of assignments, supplementary levies, federal subsidies, state contributions, and federal subventions (pp. 229–37) is perfunctory and inadequate.

To say this, however, is to criticize the author for promising too much; certainly it is hard or impossible to generalize about ideal solutions for all federations. A general prescription, useful as a formula for proximate reform in, say, Germany, America, and India, is probably not worth seeking. So far as the author does commit himself, however, it seems that he overestimates the merits of supplementary levies as against assignments or revenue-sharing of centrally administered taxes. It is ungracious and inappropriate, in these days, to disparage a book which offers much because it might have given us more. As Sir Cecil Kisch remarks in the Foreword, "those engaged in administrative work or in the study and teaching of economics will be grateful to Professor Adarkar for filling with conspicuous success a distinct gap in the literature of public finance." Teachers of courses in government finance will find here many passages and chapters which ought to be included in their assigned readings. There is a fair index and a useful bibliography.

HENRY C. SIMONS

University of Chicago

A History of Taxation in Minnesota. By GLADYS C. BLAKEY. Minneapolis: University of Minnesota Press, 1934. Pp. 86. $0.75.

Mrs. Blakey's monograph is a clear and concise history of tax institutions in Minnesota. Up to 1900 the unmodified general property tax dominated the field, with differentiation confined largely to the gross earnings tax on railroads and public utilities. Following 1900 came the era of reform in which the Tax Commission, the "wide-open" amend-

ment to the Constitution, and the classified property tax were inaugurated. Then came a period of diversification of the tax system, special taxes on the mining industry, taxation of motor vehicles and gasoline, the income tax, a special tax on forest lands, chain-store taxes, and liquor taxes.

This publication supplements the study of Professor Roy G. Blakey, *Taxation in Minnesota*, published in 1932. Together the two studies give us a very complete account of the tax problem in Minnesota and how it developed. Its account of the history of taxation in Minnesota leaves one with an appreciation of the fact that tax systems—if so they may be called—are not made, but grow. For example, the elaborate Minnesota classification of property for assessment is observed to be not a matter of rational design but of custom written into law.

HAROLD M. GROVES

University of Wisconsin

The Federal Debt, 1919–1930. A Chapter in American Public Finance. By HENRY GEORGE HENDRICKS. Washington (5629 Kansas Avenue): Privately published, 1933. Pp. 333+15 (appendixes). $6.00.

This book abounds with quotations, some rather lengthy and not always interesting, and it is footnoted to the point of boredom. Further, while the subject matter of the successive chapters is covered well enough, the work as a whole lacks internal cohesion. The effect is that of a series of chapters on certain aspects of the federal debt during the period 1919–30, rather than an integrated treatise on the subject.

The final chapter, entitled "Results of the Debt Policy," is devoted to a discussion of the effects of debt payment in general, with a digression on the question of loans versus taxes in war financing. The writer takes exception to the view that a certain minimum of federal debt must be maintained in order to provide a means of using treasury surpluses other than by spending them, and in order to provide the short-term securities said to be necessary to the functioning of reserve bank open-market operations.

The principal advantage of a book of this sort is as a compendium of factual information relating to those aspects of the federal debt of which it treats. The absence of critical judgments and the limited attention to the fundamental matters of policy will sharply restrict its use by readers other than those in search of statistical or factual data.

H. L. LUTZ

Princeton University

Summary of the Fulfilment of the First Five-Year Plan for the Development of the National Economy of the U.S.S.R. (Report of the State Planning Commission of the Council of People's Commissars of the Union of Soviet Socialist Republics.) Moscow: State Planning Commission of the U.S.S.R., 1933. Pp. x+296.

This has the appearance of a very impressive report. It has been prepared by the controlling organization in Russia's system of "planned economy"; it includes among its editors a number of prominent communists; and its different sections—beginning with a "General Survey" and then covering each important phase of Soviet economic development—furnish abundant material on the results of the Five-Year Plan. Even the use of the word "fulfilment" in the title of the report is not without some justification. For no matter what the reader's attitude may be toward the Bolsheviks' revolutionary program, he cannot ignore the evidence of vigorous and, at times, surprisingly rapid economic expansion which this volume's statistical tables provide.

Yet with all its official data and its equally "official" conclusions, the report is often misleading. Its editors attach too great importance to purely quantitative results. Progress in a given industry is usually measured by rapid increase in output; and little or no attention is paid to the effect of forced expansion upon the quality of the goods produced. It is a well-known fact that in such branches of soviet economy as coal-mining, boot and shoe production, or the manufacture of steel, clothing, or textiles, deterioration in quality has become a serious and much-debated problem. Yet one finds no evidence of this in the pages of the report.

Nor can one find anything like an adequate discussion of labor productivity—a factor which Lenin considered of decisive importance in testing the relative efficiency of socialism. The report does contain certain estimates—a 41 per cent increase for Soviet economy as a whole and a 53.1 per cent increase for heavy industry—but these figures seem surprisingly high when compared with the rapid increase in the number of workmen employed in Soviet Russia, and they have been sharply challenged by Professor S. N. Prokopovich, one of the most careful investigators of Russian economic conditions. In his recent *Ideia planirovaniia i itogi piatiletki* (Paris, 1934), Professor Prokopovich estimates the increase in labor productivity in heavy industry at a mere 5.3 per cent, without even making any allowance for

deterioration in quality. When such adjustment is made, the "gain," according to Prokopovich's estimates, becomes a loss of 7.4 per cent.

Another rather obvious defect in the report is the method of selecting and summarizing available data. For example, in the chapter on agriculture, much space is devoted to successful experiments in stock-breeding, while total live-stock production—which has become so vital a question since the wholesale slaughter of farm animals in 1930—is passed over in silence. Again, there is abundant information on the "tractorization" of agriculture, but one looks in vain for comprehensive statistics on grain production. Even the pages devoted to collective farming are not free from such sins of omission; the figures for the growth of "collectivized" holdings are made to show uninterrupted progress, and there is no indication of the violent changes which took place in 1930, when communists, in Stalin's phrase, suffered from "dizziness from success."

Several other examples of this tendency are worth mentioning: the failure to discuss excessive labor turnover, the minimizing of recent difficulties in railway transport, the attempt to smooth over some of the more notorious weaknesses in the Soviet distributive system, the too optimistic picture of the workers' scale of living, the utterly inadequate discussion of currency inflation, and the failure to pay sufficient attention to the lag in coal and steel production—a development which has threatened to throw the whole Soviet economic program out of gear, and which proved so serious in 1931–32 that the revised quotas for these products had to be sharply reduced. Lack of space cannot be given as an excuse for such editorial omissions; for there is more than one chapter in the report where statistics are needlessly repeated, and the editors seem to have felt no hesitation in scattering eulogies of Stalin, along with denunciations of "kulaks," "Right opportunists," and "Trotskyists," throughout their "summary" of the Five-Year Plan. All this, unfortunately, gives the impression that party politics have played an unduly prominent part in the preparation of this book and lays the editors open to the charge of being more interested in the book as propaganda than as a source of reliable information.

It should, of course, be remembered that this volume appeared at a time when Soviet Russia was confronted with acute food shortage and serious political unrest. Such circumstances, no doubt, explain the shortcomings of the report; but they can hardly excuse them, nor can they justify the injection of party slogans into what is ostensibly an objective statistical survey. Even during the stormy years of war

communism, when the Bolsheviks' tenure of power appeared far less secure than it is today, the line between statistical analysis and political propaganda was much more sharply drawn. It is most disturbing to see this tendency reversed—particularly at a time when the many solid achievements of the Five-Year Plan ought to make it much easier for Soviet officials to face unpleasant facts.

In the Introduction to the report the chairman of the State Planning Commission, V. V. Kuibyshev, speaks of the possibility of future revision. One hopes that such revision will not only take place, but that it will be based on a much more thorough and impartial study of the facts than has been the case in the present volume.

MERRILL SPALDING

Stanford University

The Coming American Revolution. By GEORGE SOULE. New York: Macmillan Co., 1934. Pp. x+314. $2.50.

The Coming American Revolution by George Soule is a refined Marxian analysis of the depression period. Mr. Soule carefully points out that when he speaks of revolutions he is not concerned with a violent overthrow of government, but instead he is dealing with the more subtle social processes which can be discerned only after careful and exacting analysis. "A true revolution," says Mr. Soule, "takes many years, even generations, in the making." This statement indicates a keen insight into the cultural and psychological factors which constitute the very foundation of any society.

To find the "true revolution" in the making it is necessary to look beneath the surface, and this Mr. Soule does in a very decisive fashion. Under the surface of the present culture he finds: (1) that there is a technical development which makes comparative abundance possible for everyone; (2) that the present industrial system requires a high degree of flexibility if an economy of abundance is to be realized, but this is not possible when the whole economic process is managed with view to profits only; (3) that a concentration of wealth in the hands of a few makes it impossible for the great mass to rise by means of independent ownership; (4) that the majority of the legal owners of property have no voice in management; (5) that there are many evidences of the fact that the oppressed classes are becoming restive; (6) that the more sensitive of intellectuals are stirring ferment by spreading new ideas; and (7) that certain oppressed classes are getting a

toe-hold in the more important controls, i.e., labor has secured a degree of collective bargaining and some of the intellectuals have secured high places in the government.

In Part III under the title of "The Crisis of the Thirties" Mr. Soule is at his best, and gives a penetrating analysis of this period. Mr. Hoover is characterized, not as an executive without a policy for meeting the crisis, but as an avowed exponent of classical economics and a believer in the "natural" revival of business. The Roosevelt program is described as a "baby step" toward a planned economy. "The President," says Mr. Soule, "never lived up to the implications of the major aims he announced. The program was not assessed for inconsistencies; no informational machinery was set for checking in detail whether progress was being made toward announced aims. . . . . Since even the sensory part of the planning brain was lacking the thinking part naturally could not exist." Furthermore, complete social planning was put on the rocks by the rulers of the old economic régime as soon as they regained their poise following the dark days of the late winter and spring of 1933. As the rulers of the old order gained courage they emasculated all attempts to plan beyond the point of making profits again possible.

Mr. Soule plays the part of a prophet and concludes that "capitalistic planning, if it retains its present victory over labor, farmers and consumers in general can therefore lead only to one of two results: (*a*) without inflation to a revival of profits without much revival of anything else, followed by a return to depression; (*b*) with inflation, to an inflationary boom followed by a crisis." However, there is another direction which can be taken and this, says Mr. Soule, is more in accord with the original announcements of President Roosevelt. This road of travel would include a "more equal distribution of income, progressively increased production and standards of living, greater stability of the economic system and more security for everyone."

REX M. JOHNSON

Lake Erie College

Forestry: An Economic Challenge. By ARTHUR NEWTON PACK. New York: Macmillan Co., 1933. Pp. 161. $1.25.

This well-written book is primarily a criticism of foresters and the progress that forestry has made in the United States under their leadership. The lay author discusses frankly a few of the questions (econonomic and otherwise) that have beset foresters in their fifty-year

struggle to awaken the nation to the vital importance of conservation. He rightfully points out that forestry in its original concept was largely a crusade to save the saw timber rather than the forest, but the author errs in the belief that foresters now "are themselves completely lost in the woods." Some of the old pioneer foresters (of whom some unfortunately are still in responsible positions) may find it hard to broaden their viewpoint to envisage the full social and economic implication of forestry, but the reviewer believes that the average forester has long since seen the vision and as proof offers the technical writings of the last ten years and the conservation progress of the last twelve months.

It is brought out how unpopular conservation was with the pioneer. However, the picturesque reference to economics being the "crusader-conservationist's heel of Achilles" is open to question. It was not the lack of worldly goods that handicapped, and still hinders, the conservation movement, but rather the unfortunate ethical and moral logic of the early settlers. Theirs was all risk and then, why not the supreme reward? Thus glutted, they cared nothing for tomorrow. It is usually in a period such as we are now entering, when the days of individual superabundance are over but before real national poverty sets in, that humans lose their selfishness and are willing to make needed sacrifices for future generations.

The author's lack of forestry training comes to the surface in his chapter on "Private Enterprise" where he valiantly tries to expound certain forestry technic. The reviewer, a former teacher of silviculture, does not recognize the description in this chapter of what is purported to be the selection system of harvesting the mature timber in a forest. Lack of technical knowledge is, perhaps, excusable, but summing up the findings of a government commission and even referring to its final report as "extremely bulky" before that report was even written cannot be condemned too strongly. Most unfortunate for the author he did not guess right; the solution that he gives, the old yield-tax method of taxing the forest, we now know from the available part of the final report is not the method recommended by the Commission. Economists will correct also another statement in this chapter, "that other nations have substituted systems which recognize that forest taxes are fairly and dependably collectible only when there are earnings with which they can be paid."

The last half of the book concerns itself largely with the shortcomings of foresters. The reviewer, one of the most severe and constant critics of his profession, while agreeing in part with many of the

criticisms, can understand, where the author cannot, why in a greedy, selfish world foresters have not always shown the quality nor made the progress that theoretically should have been possible; but to expect foresters to present a united front on such a question as governmental ownership versus private initiative is expecting the impossible!

Better teaching and nation-wide planning are the principle ideas offered by the author. Ironically, the most constructive and definite portions of the text are quotations from the recent writings of foresters themselves.

P. A. HERBERT

Michigan State College

L'agriculture dans l'évolution de la crise mondiale. (Agriculture in the Evolution of the World Crisis). By J. ALQUIER, *et al.* Paris: Librairie Félix Alcan, 1933. Pp. 233. Fr. 20.

This volume contains the proceedings of a series of six lectures delivered during February, March, and April, 1933 at the National Institute of Agronomy in Paris. The central theme, the rôle of agriculture in the world crisis, is dealt with on a regional basis. The speakers were evidently chosen because of their first-hand and recent familiarity with agricultural conditions in certain countries.

The extent of this "tour" is indicated by the topics treated:

1. "Agriculture and the Crisis in the United States"—Lucien Romier.

2. "German Agriculture and the Economic and Financial Policy of the Reich"—Daniel Serruys.

3. "The Crisis in Central Europe Viewed from the Agricultural Angle"—Jean de Nicolaÿ.

4. "The Agricultural Situation in South America"—J. H. Ricard.

5. "The Agricultural Debts in Japan, China, and India. Their Effects upon the Political and Economic Crises"—Pierre Lyautey.

6. "The Great Lessons of the Crisis and French Agriculture"—W. Oualid.

These talks are travel lectures with an agricultural slant and a depression flavor. The shifting scenes and the changing actors make it difficult at times to connect the action with the plot.

The observer for the United States characterizes in a dramatic fashion the economic tumble of the farmer in this country. In 1927 he is depicted as one leading the life of a millionaire. In 1933 he is

wearing sackcloth and sitting in ashes. This change is due to a capitalistic system of farming, dependent upon credit, operated by machines on a mass-production scale, leaning heavily on foreign outlets for the sale of its products. The American farmer is the victim of a speculative system. In short, he departed from the tried-and-true traditional formula of the small family farm. Some American authorities will disagree with the diagnosis, and many will reject the conclusion.

Germany is agriculturally minded. As a nation it is farm conscious. A strong agriculture is a definite part of its system of national defense. The political, financial, and trade policies of the government are directed toward a well-balanced and prosperous farming industry. Yet, German agriculture is in distress. The farm debt is now greater than the entire national debt before the war. Another difficulty arises from the costly ideal of agricultural self-sufficiency. Germany has not taken into consideration the intimate relationship between her agriculture and that of the rest of Europe.

Agriculture in Central Europe—the Balkan States—is characterized by the land-reform movement. Large estates were parceled, after the war, into small holdings, going to those with no funds and insufficient credit. The limited funds available for loans to these settlers were to be had only at exorbitantly high interest rates. The results were, in many cases, reduced production from the land, and reduced production per individual, which is more serious. The basic problem in these states is the placing of their surpluses not required for domestic needs. The lecturer holds that this must be done through the granting of tariff preferences by consuming states. The most-favored-nation principle stands in the way. Means must be found for confining these trade concessions to particular countries and not generalizing them by the most-favored-nation route.

In South America the economic catastrophe is due to quantities of production in excess of market demands. The defense adopted does not tend to better the situation. The usual procedure is to "reduce imports, increase exports." This is a fine policy were its application possible. It seems difficult for those formulating policies of government to appreciate that a nation cannot long continue to buy little and sell much.

The question of agricultural debts is the key to the economic problems of the Far East.

French agriculture has stood the test. It has not fallen to the lures

of overcapitalization, overindustrialization, overspecialization, or easy credit. "It gathers now the fruits of its moderation and its individualism." French agriculture remains faithful to its traditions—family-sized, -owned, and -operated farms.

ASHER HOBSON

University of Wisconsin

Price Differentials in Wheat Futures between Kansas City and Chicago. By RAYMOND WILLIAM BALDWIN. Chicago: University of Chicago Press, 1934. Pp. ix+46. $0.75.

This study is a definite contribution to the information concerning the fundamental factors (as distinguished from the technical factors) which influence the price spreads between Chicago and Kansas City. In the reviewer's opinion it is to be regarded as an initial venture in the analysis of these factors rather than a complete report on the subject; but its main conclusions are clearly outlined and merit the careful attention of students of wheat marketing.

Perhaps the most valuable finding is that the Chicago–Kansas City price spreads were more closely associated with the receipts of wheat at Kansas City and with the exports from the Gulf than they were with the wheat harvests in the Southwest. The differences in these relationships suggest that probably the balance between the Kansas City receipts and the Gulf exports indicates which of the two alternatives offered the more favorable outlet for the surplus wheat of that territory. Another important point is that the monthly averages of the price spreads disclose a seasonal variation with the greatest differences occurring in June and July.

A few inaccuracies were noted. For example, it is stated that "Minneapolis is located in a surplus producing section with large quantities of the wheat normally flowing through Chicago on its way for export." It is true that substantial quantities of wheat have been exported from the Northwest, but in post-war years the great bulk of it has been durum wheat which does not move through Chicago for export. Fortunately these inaccuracies relate only to explanatory details and do not affect the main conclusions.

H. S. IRWIN

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Che cosa vuole l'America? By HENRY A. WALLACE, with an Introduction by LUIGI EINAUDI. (Problemi Contemporanei—I.) Turin: Giulio Einaudi, Editore, 1934. Pp. 121. L. 12.

This Italian translation of Henry Wallace's *America Must Choose* is the first of a series of monographs, entitled collectively *Contemporary Problems*, which are to be published under the editorship of Professor Luigi Einaudi, of the University of Turin. Its interest to American readers, already familiar with Wallace's book in the original, must obviously lie in the contents of the Introduction—some thirty-seven pages long—which Professor Einaudi has written for the Italian version.

The scientific attainments of Luigi Einaudi have made his name known even to those economists whose unfamiliarity with Italian prevents them from knowing his work at first hand. Yet it is a pity that such economists should be deprived of the joy which comes to those who are able to taste the peculiar qualities in Einaudi's writing which are represented so admirably in the Introduction to this volume. Here, as elsewhere, one is warmed by the author's gently ironical yet tolerant humor—as in his comment upon the rough treatment of professional economists which is represented by Mr. Wallace's habit of implying that professional economists "make simple things complicated, merely out of a desire to muddle the heads of their readers," though the truth is that Wallace himself does little more than "re-expound, as if he were discovering for the first time," ancient truths which can be found in any textbook on economics (p. 12). We might just as well resign ourselves, Professor Einaudi suggests (p. 13), to being "plundered and then abused into the bargain"; for, after all, "what matters is that the truth should be told—it does not matter at all whether it be told in the name of the sacred economic texts" (p. 23). Here also, as elsewhere in Einaudi's writings, one is stirred and strengthened by the uncompromising incisiveness with which the author professes the faith of the economic liberal—as when he discusses Wallace's utterances with respect to international trade policy against the background of certain other features of the New Deal with which the editor is less in sympathy (pp. 22 ff.)

ARTHUR W. MARGET

University of Minnesota

Trade Associations: Management Policies, Organization, Personnel, Services. By W. J. DONALD. New York: McGraw-Hill Book Co., Inc., 1933. Pp. xiv+437. $4.00.

The fact that trade associations have been made the nucleus of the National Industrial Recovery Act makes this book most timely. The problems of trade associations are discussed in terms of policies, organization, personnel, and procedures.

Although the author recognizes the differences between private corporations and non-profit associations, he draws a parallel between the management of trade associations and that of private business. He emphasizes the universal value and application of the principles of organization and management and urges their application alike to the management of business and associations. He deplores the absence of written statements of management policies among associations, and in explanation of this situation he points to a similar lack of a clear-cut and comprehensive understanding of such policies by private corporations. The author insists that such policies be codified and written and that the "responsibility for the adoption and revision of policy should be definitely located" (p. 19).

The policies for the management of an association as well as trade practices (chap. xii) are discussed under these headings: merchandising, marketing, public relations, production, finance, personnel, and purchasing. In the discussion of association management policies lies one of the chief values of the book.

In chapters iii–xi the author discusses such topics as: organization, membership, boards of directors, officers, committees, subsidiary organizations, conventions, association executive and staff. Although other writers on trade associations have ably discussed these problems, the changed status of associations under the NRA and the wide experience of Mr. Donald as management counselor and executive to trade associations make these chapters interesting and profitable reading. Of particular value is his discussion of the qualifications and duties of the association executive. The new possibilities of associations in determining the policies of an entire industry call for an executive of "greater capacity, versatility, and breadth of knowledge and information" than in the past (p. 291).

Under the caption of "Association Services" (chap. xii) the author discusses all too briefly such trade policies as are found in the average code of fair practice. He hopes and believes that economic planning

will increase the output of goods and services. Although he regards restriction of capacity and of modernization of plant capacity as socially and economically unsound, he favors association efforts to prevent waste of capital investment. He would accomplish this end by the collection and dissemination of adequate information regarding the "fixed capital needs of industry" (p. 388).

Specific references to other sources of information are conspicuously absent. Of the books referred to several are obsolete while references to more important recent books are omitted. In the reviewer's opinion, more should have been said regarding the attitude of associations toward the trade practices of an industry. The book should prove helpful to new and old association executives and to the student of business organization.

JOSEPH H. FOTH

University of Rochester

The Industrial Commission of Wisconsin. By A. J. ALTMEYER. Madison: University of Wisconsin, 1932. Pp. xiii+324.

The importance of the part played by administration in the field of regulatory labor law has been frequently pointed out during recent years. The administration of such legislation continues to be little short of disgraceful in many states, however, and well-meaning persons continue to devote their efforts mainly toward the refinement of statutes often already reasonably satisfactory, to the neglect of administrative evils which seriously cripple the usefulness of the law as a whole. This situation arises in part because it is relatively easy and popular to stage a short, dramatic struggle before a legislature and extremely difficult to arouse intelligent support for a persistent, drab campaign for administrative improvement. It is due in part to ignorance of the fact that good administration is not automatic or accidental, and in part to the fact that little information is available as to what constitutes good administration and how it may be secured.

Dr. Altmeyer's study is a pioneering attempt to throw light on this last point by analyzing the functioning of an outstanding administrative agency operating in the field of labor law—the Wisconsin Industrial Commission. It discusses, in considerable detail, the way in which regulatory labor legislation has been administered in a state which has stood well to the forefront in the field, carefully describes various administrative devices and procedures which have been developed in that state, and attempts to evaluate their effectiveness. As the enforcement

of labor legislation is highly centralized in Wisconsin, the book covers a wide field: workmen's compensation, safety and sanitation, regulation of employment conditions, wages and hours for women and children, employment offices, apprenticeship, mediation and arbitration, statistics and research, and a number of miscellaneous matters.

Dr. Altmeyer's many years of experience as chief administrative officer of the Wisconsin Industrial Commission have qualified him in unusual degree for the task which he has undertaken. His detailed discussion of administrative processes of the Commission is extremely good, particularly the sections on workmen's compensation and safety and sanitation. His relationship to the Commission has proved something of a handicap, however, in appraising and generalizing upon the descriptive material assembled; in his anxiety to remain impartial, he has been perhaps unduly cautious in his generalizations and has probably been, on the whole, overly critical of the Commission's work. He has made discriminating use of the excellent body of statistical data collected by the Commission. Some field analysis of the way the Commission's procedures have actually operated would, however, have assisted him to make objective appraisals. It would seem important, for example, to know something of the number and amounts of underpayment of compensation resulting from the failure of the Commission to require interim and final receipts showing such payments (see p. 42). In other states, laxity on this point has resulted in serious injustice.

Dr. Altmeyer has, to the reviewer's mind, under-emphasized the importance which security of tenure and the selection of personnel on the basis of ability have played in securing good labor law administration in Wisconsin. His official position has prevented him from giving proper emphasis to the important part played by certain individuals in the excellent record which the Commission has made. This book is an important contribution to a much-neglected field. It wili be extremely helpful to administrators and others concerned with the problems involved in regulating labor conditions.

HOWARD B. MYERS

Washington, D.C.

What Electricity Costs. Edited by MORRIS LLEWELLYN COOKE. New York: New Republic, Inc., 1933. Pp. xxi+275. $1.00.

This volume contains the papers read at the meeting of the Institute of Public Engineering in New York City on January 9, 1933, together with digests of portions of the discussions of the papers which took

place at the meeting. The editor, Mr. Morris Llewellyn Cooke, a member of the New York Power Authority, was the directing genius of the meeting, which achieved semi-official status through sponsorship by the Authority in association with the public service commissions of New York, Pennsylvania, and the District of Columbia.

The genesis of the meeting was the fact that electric utility companies, while compiling and publishing accurate and detailed cost figures for electric generation and transmission, have in the past generally failed to reveal the cost of distributing electricity, especially to domestic consumers, contending that such costs were impossible of ascertainment. The conference was arranged to meet this challenge, both by suggesting techniques of distribution cost-finding and by publishing the results of the application of such techniques.

The paper entitled "Distribution Cost of Electric Energy with Special Reference to Residence and Rural Consumers," presented by Mr. Clayton W. Pike, seems to have aroused the most interest and discussion; Mr. Cooke called it "a very important landmark in electrical development" and "the first serious effort to summarize all the actual costs incurred in carrying electricity from the local substation to the meters of the domestic consumers." Mr. Pike took for his norm a customer using 550 kwh. per year (the nation-wide average for domestic consumers in 1930), and requiring 500 feet of overhead distribution wires for service (the average for a number of companies in the State of New York as determined by Mr. Pike from reports to the New York Public Service Commission). The average distribution investment for such a consumer he found to be $55.00. By a similar use of average figures Mr. Pike estimated the annual fixed charges, in addition to 7 per cent for return, to be 3 per cent for depreciation, 1.4 per cent for taxes, and approximately .1 per cent for insurance: a total of 11.5 per cent of the $55.00 distribution investment, or $6.35. Operating and maintenance expenses were found, again based on averages taken from company reports, to be $6.65 per customer per year. The total costs for such a customer were thus found to be $13.00 per year, or $0.0236 per kwh.[1] The average investment for a customer using 600 kwh, the national average use in 1932, (again assuming that there were no underground wires), was found to be $56.36, annual

[1] This figure does not include the cost of generation and transmission, but only the costs incurred after the delivery of the current to the outgoing or low-tension side of distribution substations. Data presented at the conferences tended to show that additional generation, transmission, and substation costs (on an average) did not exceed $0.0155 per kwh.

distribution costs $13.26, and the cost per kwh. $0.0223. Mr. Pike reduced his experience in determining average investment to a formula, too elaborate for discussion here, which took account of such variables as customer density, average amount of use, average length of distribution wire per customer, and the amount of underground conductor.

The Pike paper presented more definite cost figures than any other read at the Institute meeting, and will undoubtedly help to dispel some of the haze of uncertainty and obfuscation which has made distribution costs seem such a mystery. Like the other papers, however, it is subject to two principal criticisms. It is, in the first place, based on averages derived from company figures which are themselves unreliable. Utility companies have had every incentive to pad both capital and operating costs, and averages derived from such figures will necessarily be excessive. Should the Institute meet again, it is to be hoped that it will make available cost studies based on engineering experiments and critical accounting studies, rather than on uncriticized industry figures.

In the second place, there was a distortion of emphasis. In the Pike paper costs were based on assumed usages not exceeding 650 kwh. per year, a meager usage which results only from the inability of domestic consumers to buy and use electricity economically at present rate levels. The emphasis might much more helpfully have been placed on increment costs, on the fact, brought out only casually and by inference in the discussions, that electric utilities, even on the basis of their own figures, could profitably sell twice or three times as much energy to each customer with only a slight increase in the total bill, and in some cases with no increase at all.

Although the findings of the Institute were only tentative and inconclusive, it has served an important public function in focusing attention on electrical costs and rates. The healthy self-criticism of methods and results which was evidenced at the meetings gives promise of important developments in cost-finding in the electrical distribution field.

JOSEPH C. SWIDLER

Knoxville, Tennessee

The Economics of Free Deals: with Suggestions for Code-Making under the NRA. By LEVERETT S. LYON, assisted by HELEN MAY WHEELER. Washington: Brookings Institution, 1934. Pp. xv+227. $1.50.

This is a study of a trade practice, prevalent especially in the grocery and drug trades, under which premiums and "free goods" are giv-

en to purchasers by manufacturers and dealers as a means of promoting sales. The study is intended to throw light on this practice, especially in its relation to prices, "to indicate the economic and business effects of free deals," and to make suggestions for the formulation of trade practice agreements.

The first of the purposes mentioned is amply fulfilled. The author presents a comprehensive description and thorough analysis of free deals in the two trades and discloses the occasion for, and the importance of, this indirect method of price reduction in the marketing of branded, or semi-monopolistic, goods in a highly competitive field. The treatment of the economic and business effects of this practice is much less satisfactory. In his direct study of these points, the author arrives at a conclusion only as to the extent to which the benefits of free deals are passed on from wholesaler to retailer and from retailer to consumer. (It appears that usually the benefits are passed on, even where such a result was not intended.)

The economic effects of free deals are suggested indirectly in a chapter on the attitudes of deal-givers and deal-recipients toward this practice. Deal-givers favor the practice to some extent on account of its advantages as a selling device, even by reason of the uneconomical buying that it entails. But deal-givers raise objections also: "Manufacturers . . . . question the deal on the ground that they load the trade artificially and speculatively and subsequently interfere with sound and orderly distribution"; "The deal is very often employed to push sales at what would, even without them, be peak periods, thus increasing the undesirable irregularity"; "Wholesalers so generally feel opposed to manufacturer deals that they are more disinclined than manufacturers to say anything favorable of them."

Though the author himself refers to the giving of free deals as "an irritating competitive trade practice," he defends it, in answer to the objections of the trade, upon the basis of the analogy between the deals and direct price cuts and by contrasting the price result with unrelieved monopoly price. His conclusion is that "if the alternative to the use of deals is the maintenance of a standard price and the degree of monopoly which such rigidity of price implies, there is no doubt that lower prices for the consumer and a more flexible adaptation of price to the forces of demand and supply are secured by the institution of free deals." Having thus accepted the free deal, he offers suggestions to those formulating NRA codes, with precautions which are epitomized in his No. 3: "In writing code regulations relative to deals, extreme

care should be taken to make sure that the code prohibits those forms of deals which it is the desire of the trade to condemn and allows the use of those which it does not desire to condemn."

To support these recommendations, it seems that a substantial body of data on the economic aspects of free dealing should have been presented.

ROY EMERSON CURTIS

University of Missouri

Sociology and the Study of International Relations. By L. L. BERNARD and JESSIE BERNARD. St. Louis: Washington University, 1934. Pp. 115.

In this book an effort is made to summarize and evaluate the contributions of sociologists to the study of world-politics. The summary is excellent. Here one may find, in percentages over a period of years, how much attention American sociologists have been devoting to international relations, how many sociological research projects and how many theses have fallen in this field, and how many sociology courses bearing on international relations are offered in the various universities. Here one may also find, half a dozen or more to the page, what leading sociologists have written about international problems. The evaluation is less adequate, though the chapters on "Sociological Concepts," "Possible Contributions of Sociology to Co-operative Investigation," and "Relations of Sociology to Other Social Sciences" are highly suggestive. The study would have been more helpful if it had included a consideration of recent work done in international relations by economists, historians, and political scientists employing sociological terminology and techniques. More specific attention to social psychology, which seems likely in the future to make the most significant contributions, would likewise have been desirable. The conclusion is inherent in the evidence: "The chief contributions of sociology to the field of international relations in this country have perhaps been through points of view and analyses developed primarily in national and local group analysis."

FREDERICK L. SCHUMAN

University of Chicago

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